ANNUAL DEPARTMENTAL REPORTS 1960-61

DIRECTOR OF AGRICULTURE AND FORESTRY

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EXCHANGE RATES

When dollars are quoted in this Report, they are, unless otherwise stated, Hong Kong dollars. The official rate for conversion to pound sterling is HK$16=£1 (HK$1=1s. 3d.). The official rate for conversion to U.S. dollars is HK$5.714=US$1 (based on £1=US$2.80).

Note: The weights and measures used in this Report are:

6 dau chung	=	1 acre
1 picul	=	133 lb.
1 catty	=	1.33 lb.
1 tael	=	1.33 oz.

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PART 1

POLICY

THE agricultural policy of the Department of Agriculture and Forestry is to encourage maximum economic production of food crops and livestock, and to make the best possible use of natural resources with conservation and improvement of soil fertility; and with this to achieve a progressively higher standard of living for people engaged in farming. The principal aim for forestry is the protection of water catchment areas of the territory; whilst, at the same time, obtaining the maximum economic return from the produce of these areas. The encouragement of private forestry and amenity planting are also important.

ORGANIZATION

2. Research, extension, education, regulatory and administrative services are provided, through three major and three minor divisions. Administration is carried out by the directorate, assisted by secretarial and financial services.

3. In July 1960 the Marine Fisheries Section, together with the Fisheries Research Unit previously attached to the University, were combined with the Co-operative Development Department. Pond Fish Services remained with the Agriculture and Forestry Department. Pond-fish farming is closely allied to agriculture and land use.

4. The Department has an Agricultural Division, which deals with crops and their associated problems, and pond fisheries development; this Division also deals with compensation and export certification for crops. The Animal Industry Division deals with health, husbandry and breeding work for all types of livestock. The Regulatory Section of this Division deals with such matters as rabies control, quarantine of livestock, inspection of animal products and their certification for export where required, and also with inspection and licensing of dairies and the keeping of cattle, goats, sheep and swine in the urban areas. The Forestry Division is concerned with Government plantations, mainly in the catchment areas, and general forestry regulatory work; it also assists with amenity planting and private afforestation.

5. There are three minor supplementary services; these include a Credit Section which, in addition to processing applications and grants of loans for agricultural purposes from the Kadoorie Agricultural Aid Loan Fund, also deals with applications for grants provided by the Kadoorie Agricultural Aid Association. The Education and Information Section undertakes the training of both young and adult farmers through vocational courses, and provides farmers' radio programmes and film shows. The Land Utilization and Soil Survey Section provides supplementary services used jointly by both the Agricultural and Forestry Divisions, as well as investigating the economic situation and problems of farming generally and farm communities in particular.

6. At the end of the year, planning was in hand to provide a unified approach to the farming community through an Extension or Advisory Service, organized on a district and sub-district basis. This reorganization of departmental services will be put into gradual effect in the coming twelve months.

7. The Department maintains nine experimental stations; at Tai Lung, near Fanling, for crop and forestry work; at Sheung Shui, for market gardening; at Castle Peak, mainly for livestock, poultry and pigs, the latter including the Boar Centre for Artificial Insemination. There is a station at Ta Kwu Ling, for crops and livestock on dry land; at Tai Mo Shan, for fruit and other crop work on high, hill land; at Sai Kung, for forestry, fruit and other crops, and pigs; at Sha Tin, for work with exotic pigs; at Silver Mine Bay, for the testing and multiplication of seed of vegetable selections, and some livestock; and at Au Tau for pond-fish experiments.

LEGISLATION

8. During the year the following amendments were made to the Public Health (Animals and Birds) Ordinance and the Regulations made thereunder:

(1) Public Health (Animals and Birds) (Amendment) Ordinance, 1960.
(2) Public Health (Animals and Birds) (Keeping of Cattle, Swine, Sheep and Goats) Regulations, 1960.
(3) Public Health (Animals and Birds) (Animal Dealers) Regulations, 1960.
(4) Public Health (Animals and Birds) (Amendment) Regulations, 1960.
(5) Dairies Regulations, 1960.

Under these regulations the Director of Agriculture and Forestry becomes the licensing authority for:

(i) the keeping of cattle, swine, sheep or goats in the urban area,
(ii) animal dealers,
(iii) dairies, and
(iv) registrar of dairymen.

PART 2

PRODUCTION—SURVEY OF INDUSTRIES

A. AGRICULTURE

Paddy

9. Production continued to decrease, compared with previous years. Due to very dry conditions in April planting of the first crop was delayed and only 80% of the land available was planted. In addition, the typhoon in June also caused minor, local damage. Final first-crop production fell by 26%, compared with 1959-60. Yields of the second crop were generally good; except for the brackish-water crop which was badly damaged by blast *(Piricularia oryzae)*. The total harvest for both crops was estimated at 453,270 piculs (27,414 metric tons) which, on a milling percentage of 68%, is equivalent to 18,642 metric tons of clean rice. The value of the crop was estimated to be $16,392,120; approximately $2,155,880 lower than the previous year.

10. Paddy production and monetary value over the past five years is recorded below; production by district is given in Appendix 3.

TABLE 1

PADDY PRODUCTION—5-YEAR RECORDS

Year	*Production (piculs)*	*Estimated Value*[1] *($)*
1956[2]	442,152	17,686,000
1957	493,650	18,238,500
1958	545,628	22,271,000
1959	519,738	18,548,000
1960	453,270	16,392,120

Notes: (1) Value calculated on ruling price of two crops fresh water paddy, one crop brackish-water paddy and one crop upland rice.
(2) Losses from typhoons.

Vegetables

11. Weather conditions were unfavourable to vegetable production during the summer months. Torrential rain in May caused serious flood-

ing in the main vegetable growing areas and resulted in heavy crop losses. Typhoon *Mary,* in June, caused further damage, especially to vegetables grown on trellises, i.e. beans and gourds. After a short period of favourable weather in July, prolonged spells of heavy rainfall throughout August and September caused further harm to crops. These unfavourable conditions were reflected in lower production during these periods. Annual production also dropped, but the decrease, 3,712 tons, was more than offset by increased value, $5,189,125.52. High vegetable prices were maintained by decreased imports from China. Comparative details of vegetable production and valuation are given in Appendices 4 and 5.

12. A serious shortage of seed, supplied normally from China, caused market prices to rise considerably. This in turn stimulated an increased use of paddy land for vegetable seed production during the cooler months.

Fruit

13. Harvests of locally grown fruit were below average. The adverse weather conditions in May and June caused serious fruit-drop to bearing trees of litchi, longan, wampei, citrus and guava. Typhoon *Mary* also caused considerable physical damage to many fruit trees, especially papaya, Japanese Apricot and peach.

14. About thirty different species and cultivars of fruit are grown in the territory; and annual production is now valued at approximately $3,036,500. Fruit prices were high and stable throughout the year, but the value of production never the less dropped slightly, compared with the previous year. Details are summarized in Appendix 6.

Flowers

15. Flower production, in the Sha Tin Valley, is gradually recovering from the serious set-back due to flood damage in 1959. Tai Po is developing into a second major flower producing area. The more important flower crops were gladiolus, chrysanthemum, dahlia, carnation, African daisy, ginger lily, and tuberose. Adverse weather conditions in the hot, wet season seriously affected flower production and was reflected in higher prices throughout that period.

16. There was the usual high demand at Chinese New Year both for potted plants and cut flowers. Growth of certain gladiolus was disappointing, due to the use of inferior corms from unreliable sources.

Most peach blossom flowered in due time and thus was able to command a good price.

Export Crops

17. Nineteen separate items were exported during the year to the small but important markets overseas for preserved, dried, and otherwise processed fruits and vegetables. Waterchestnuts, ginger, vegetable seeds, turnip and arrowhead account for some 86% of the total export crops, which are estimated to value $2,907,590.34. Lists, with comparative data, are detailed in Appendix 7.

B. INLAND FISHERIES

18. This was a good year for fish farming in spite of slight flood damage caused by heavy rain on the 6th May and by Typhoon Mary on the 9th June. Fish farmers repaired bunds and restocked ponds immediately, and the loss was not serious.

19. Production of local pond fish was estimated at 12,000 piculs (715 metric tons), valued at $3,000,000; compared with 10,000 piculs (595 metric tons), valued at $2,400,000, in 1959-60. Seasonal pond fish imports from China were received at an average rate of approximately only 600 piculs per day; and often fell to 40 piculs a day. Thus the price for pond fish was slightly higher than those of last year, especially for Grass Carp and Common Carp, despite an increase in local production.

TABLE 2

	Average price per picul ($)	
	1960-61	*1959-60*
Grey Mullet (below 1 lb. each)	180 - 250	130 - 220
Grey Mullet (over 1 lb. each)	250 - 380	220 - 400
Big Head	200 - 320	150 - 300
Silver Carp	130 - 300	110 - 300
Grass Carp & Bream	250 - 480	200 - 420
Mud Carp	160 - 260	160 - 280
Common Carp	200 - 420	150 - 320

Fish Fry Trade

20. No restrictions were imposed by the Chinese Authorities on the numbers and varieties of fry exported to Hong Kong, and prices were reasonable. Some 24,565,000 fry of various species of Chinese carp were imported, from China, and some 15,522,900 were re-exported to Singapore, Taiwan, Bangkok, Phnom Penh and Labuan.

C. ANIMAL INDUSTRY

Pigs

21. The market price of pigs remained fairly steady throughout the year, porkers averaging $210 per picul. The last quarter showed an upward trend when, due to lack of overseas supplies and increased demand during the Chinese New Year festival, prices reached $240 per picul. Census figures show the pig population to have increased by some 34,000 head; and, with many new breeders becoming established, it is estimated that of this increase some 2,000 are breeding stock. There was an increase in the number of pigs raised in the Colony and which passed through licensed slaughterhouses. The number this year was 293,806 which represents 24% of the total 1,223,432 slaughtered (see Appendix 9).

22. Based on average ruling prices, a conservative estimate of the value of pigs raised in the Colony, and slaughtered for urban consumption, was in excess of $39,340,000. In addition allowance must be made for the value of pigs raised and slaughtered by farmers for home consumption. This figure amounts to an estimated further $4,000,000.

Poultry

23. The poultry industry continued to expand. Although imports from China continued to decrease, these were offset by the importation of dressed poultry from U.S.A. and Japan, and improved supplies were reflected in a decrease in the market price; which remained steady between $3.50 and $4 per catty. The average poultry population, at any time and of birds up to the age of $3\frac{1}{2}$ months, was estimated to be 2,700,000. Local poultry farmers raised three batches of birds during the year and total production was some 8,100,000 birds. At a low average figure of $7 per bird, annual production was valued at some $56,700,000 worth of poultry meat.

Eggs

24. During the past two years the industry, previously dependent on China for supplies, has rapidly become self-supporting in hatching eggs, and prices showed little fluctuation, averaging 40¢ to 50¢ each. Estimates indicated that some 300,000 local type birds were being kept for breeding purposes. Allowing for the low egg production from this type of bird, seventy eggs per bird per year, approximately 21,000,000 eggs were produced; of these some 60% were sold for hatching purposes at an average market price of $4.80 per dozen. The remaining eggs, largely

infertile, were marketed at an average price of $1 per dozen. The total value of production was thus in excess of $5,740,000. The importation of table eggs from Japan and Thailand discouraged any increase in the White Leghorn population, which remained about the 20,000 mark and produced some 3,600,000 eggs. These, which sold at an average market price of $2.80 a dozen, fetched an estimated $840,000.

Cattle

25. A total of 4,948 cattle raised in the Colony were sold for slaughter; this shows a marked increase over the number of local cattle slaughtered during the previous year. The return from these cattle was valued at $2,375,040. The importation of cattle for slaughter decreased, by 18,709, to total 125,025 head (see Appendix 9).

Milk

26. Locally produced milk passing through the four pasteurization plants totalled 12,595,830 lb.; an increase of approximately 145,612 lb. compared with the previous year. At $1 per pound of milk the value of this production was approximately $12,595,830.

Ducks

27. Production, as in previous years, was mainly for local consumption and decreasing imports of ducks from China resulted in price increases. Breeding stock was estimated to have increased to 10,000 birds; and some 900,000 ducks were marketed locally at prices averaging $9 per bird. Production was thus valued at $8,100,000. Negotiations with the U.S. Authorities regarding conditions for processing and inspection of preserved ducks for export, to conform with U.S.A. regulations, continued; two factories built to the required standards were almost ready for production at the end of the year.

Duck Eggs

28. Following the increased demand for ducks the price of hatching eggs ranged from $8 to $10 per dozen. Monetary returns for hatching and table eggs were estimated to be in excess of $480,000.

Geese

29. Breeding stock increased to around 6,000 head and production for the market was estimated at some 90,000 birds, sold at an average price of $12 each. This, plus 480,000 eggs worth $1 each, brought the production value of goose farming to $1,560,000.

Pigeons

30. Pigeon raisers continued to expand their business, and breeding stock were estimated to increase, by 16,000, to some 40,000 birds. Prices remained steady at an average of $7 per pair of squabs, and sales were estimated to reach 200,000 pairs at a value of $1,400,000.

Quail

31. The quail population increased to approximately 15,000 breeding birds; plus a similar number marketed at $1 per bird. Production of quail eggs was assessed at 2,160,000 and sold at 60¢ per dozen. Total production was valued at $108,000.

Miscellaneous Animal Products

32. A considerable quantity of hides, hair, hoof, horn, feathers and other animal products were processed, either for local use or export. A considerable amount of this material comes from imported slaughtered stock, but there are also large quantities imported for processing and re-export. The value of these miscellaneous products certified for export, by the Department, was $16,130,177.

D. FORESTRY

33. Progress in afforestation was maintained during the year and over 1,400 acres were added to forest plantations which now cover approximately 13,300 acres. Relative to the total consumption of forest products, local production was negligible. This fact is in large part due to denudation of the Colony during the war years and the resultant relative immaturity of replacement stands. It will be several years yet before the afforestation programmes will produce tangible results and returns in the way of forest products. In the meantime, however, villagers collected a certain amount of monetary return from residual tree stands, as and where these occur. A considerable, but undetermined, amount of fuel was obtained by lopping the lower branches of pine trees on the hillsides around villages. This fuel was largely consumed locally and it is difficult to estimate its value.

34. During the year some 700 tons of timber were sold, on permit, for fuel purposes and realized approximately $33,000. This was more than three times the amount extracted last year, and appears to reflect a greater willingness on the part of villagers to thin their plantations. Village camphor trees periodically felled, on permit and to raise funds for local amenities, realized over $37,000. Departmental production

remained slight, but the sale of thinnings, and miscellaneous timber from roadside trees, realized some $5,000. The sale of Christmas trees was discontinued for economic reasons. Villagers were encouraged to sell suitable Christmas trees from their plantations; though many did so the value of these transactions was not available. $6,000 was derived from the sale of tree seedlings. The total known return (both actual and estimated) from local major forest produce amounted to some $81,000, an increase of nearly $30,000 over 1959-60.

E. SUMMARY OF PRIMARY PRODUCTION

35. At Appendix 2, the estimated value of farm and forestry products are recorded in tabular form. Accurate statistics exist for vegetables in the records of the Vegetable Marketing Organization, for livestock passing through registered slaughterhouses, for milk produced in dairies, and for export crops and other food stuffs requiring certificates of origin. The value of rice, fruit, flowers, miscellaneous field crops and pond fish, etc. can also be assessed fairly accurately.

36. In general, 1960-61 proved very satisfactory to the primary producer in Hong Kong. Overall production from crops, livestock, forests and pond fish were valued at $231,312,000 maintaining the steady upward trend recorded in the previous years. The value of the paddy crop showed a drop of 12% due to various reasons; but principally reduced acreage, adverse weather conditions and decreased market prices. The value of vegetable production continued to rise, by some 17%, due to increased acreage and improved prices. There was a slight decrease in fruit production, mainly due to typhoon damage. Sweet potatoes increased in value, by some 54%, as more fallow land was planted to this crop and market prices improved. There was a steady increase in the value of returns from fish farming due to improvements both in acreage and market prices. Livestock production continued its upward trend from the previous year's figure of $102,582,000 to the current figure of $145,384,000. This was principally due to a marked increase in the value of local pigs and cattle marketed for slaughter and the continuing expansion of the poultry industry. Forest products showed a notable recovery and more than doubled the previous year's turnover.

PART 3

AGRICULTURAL DIVISION

Officer-in-charge: Mr. R. R. Mason, B.Sc. (Agric.) (London), Dip. Agric. (Cantab.), N.D.A.—
Agricultural Officer

37. To achieve policy objectives the Division provides two inter-related services (1) the *Extension Service,* which provides specialist advice principally in relation to crops and pond fish: it also undertakes plant protection work and associated problems, and (2) the *Research Service,* which investigates results and evaluates crop husbandry and pond fish problems prior to the adaptation of results for extension purposes. Attached to the Research Service is an officer concerned with regulatory work, principally in relation to the control of organo-phosphorous insecticides.

THE EXTENSION SERVICE

38. For extension purposes the territory is divided into eight circles each served by an intinerant Local Extension Officer. The circle programmes and work are co-ordinated by a Senior Extension Officer, who also controls project teams common to all districts, e.g. the Pest Control Team, the Emergency Irrigation Team, etc. The Senior Extension Officer works in close co-operation with the Senior Credit Officer and the Rural Education Officer; and arranges for liaison with appropriate 'subject-matter' specialists.

Distribution of Improved Paddy Seed

39. Improved seed from experimental stations was distributed in accordance with a programme aimed at building up reputable, high-yielding strains in rice-growing districts. 7,688 catties of seed of first crop varieties, including Castle Peak No. 2, Early Sze Miu, Kam Bau Ngan and Fa Yiu Tsai, and 7,902 catties of seed of second-crop varieties, including Lo Shu Ngar, Wong Huk Chai Mei, Pak Huk Chai Mei, Sam Sin Kuk, Kuk Tsai, Tai Lor and Heung Keng Lor, were distributed. This represented planting-out areas of 1,098 dau chung in the first crop, and 1,128 dau chung in the second crop. Farmers purchased seed through extension staff and, in certain cases, were assisted further by loans from the Kadoorie Agricultural Aid Loan Fund.

Paddy Production Demonstrations

40. To assist in educating the farmer to obtain better yields, the Extension Service laid out demonstrations, incorporating certain established tenets of improved husbandry. All operations were carried out by farmer co-operators under the guidance of departmental field staff. Techniques demonstrated the use of seed dressed with fungicides, varieties selected as most suitable for particular environments, fertilizer prescriptions, and improved cultural operations. Throughout the growing period insect pests were controlled by prescribed spraying. All operations were within the attainment of the farmer.

41. For the two crop seasons, ten demonstration plots were laid down in eleven rice-growing districts. Fa Yiu Tsai was used for the first crop, and Lo Shu Ngar for the second crop. Although adverse weather conditions obtained during the first crop, there was little interference with demonstrations. Very satisfactory results were obtained in the second crop demonstrations. The increased yields demonstrated attracted both the comment and attention of farmers.

Paddy Fertilizer Distribution

42. The value of artificial fertilizers, as additives to traditional fertilizer practices, is well appreciated by farmers. The economic implications of fertilizer use remain less clearly understood, and present an important problem to the extension worker. Points that need continual emphasis are that dressings should not be excessive; should be applied as directed; and only applied when other cultural considerations —such as adequate water supply—are adequately met. Peasant farmers may fail to obtain satisfactory results from using fertilizers, simply because cultural conditions are inadequate, or because of uncontrolled pest and disease attack. In such cases, the farmer may well become discouraged and tend to ignore further advice. Thus overall planning for improved production may also suffer; and therefore extension workers must ensure that farmers are fully advised on the most intimate details of farm operations to obviate such mishaps and failures.

43. A standard paddy fertilizer formula (11.67% nitrogen; 8.8% P_2O_5: 4% K_2O) has been evolved from accumulated experimental data. During the two crop seasons 379,200 catties of this balanced fertilizer were distributed to selected farmers; an average of forty catties per dau chung applied to 10,733 dau chung of paddy. The current cost of use was $9.60 per dau chung; purchasers were further assisted by loans from the Kadoorie Agricultural Aid Loan Fund. Under average local

conditions, an increase of between half and one picul of paddy per dau chung was secured, i.e. $18 to $36 per dau chung. Farmers were assured of economic returns greatly to their advantage, apart from any residual effects from fertilizer application.

Water Pumping Service

44. During dry periods the above service assisted farmers in obtaining water for paddy, vegetables and fish ponds. As in previous years demands were greater than facilities available and farmers were encouraged to invest in their own pumps. 187 dau chung of paddy nurseries and land were irrigated in April and May; 857 dau chung of vegetable land were irrigated between October 1960 and March 1961; and water was supplied to 480 dau chung of fish ponds. A total of 1,311 applications for assistance were received from 165 villages and pumps were in operation for a period of 3,699.5 hours.

Plant Protection Service

45. This service gave assistance to 2,707 farmers, and visited 195 villages to render both instruction and assistance. A total area of 437 dau chung, including 333 dau chung of paddy, 84 dau chung of vegetables, 24 dau chung of miscellaneous crops, and 47,276 fruit trees were sprayed.

Distribution of Planting Material

46. With a view to improving and increasing the amount of planting material available to the farming public, selections of proven stock were multiplied for distribution. 2,209 vegetable seedlings and 257 catties of vegetable seeds, principally selections of local varieties, and 8,865 fruit trees of different types, were distributed.

Crop Compensation

47. Crops, on land resumed for various reasons, were assessed for compensation in ninety five rural locations, involving 850 cultivators. In the urban area cultivation clearance compensation was assessed at forty nine locations and amounted to a total value of $285,443.42.

Inspection of Crown Land on Permit

48. 1,324 permit areas were inspected; involving 684 acres.

Flood and Typhoon Assistance

49. To mitigate the unfortunate effects on farming of flood and typhoon, successively in May and June, tremendous time and efforts

were extended to relief work. Loan applications were investigated, damage assessed, and seed, fertilizer, and monetary grants were issued. 2,978 applications for relief were dealt with by the Department.

Advisory Services

50. Extension staff continued to undertake routine advisory work on all aspects of farming; including insect control, orchard management, paddy and vegetable culture, farm management, irrigation and land development.

THE RESEARCH SERVICE

51. A fifth service, inland fisheries, was added to the other four major sections; which are now as follows:

(*a*) *Agronomy*—including rice, field and fodder crops.
(*b*) *Market Garden Crops*—including vegetables and flowers.
(*c*) *Fruit*—including tree crops and others.
(*d*) *Plant Protection*—plant diseases and insect pests.
(*e*) *Inland Fisheries*—principally pond fish.

(A) AGRONOMY RESEARCH

PADDY

Multiplication of Stock Seed

52. Production of stock seed, from panicle selections, continued. The 'blast-resistant' variety Fa Yiu Tsai yielded 375 catties per dau chung, or 3,000 lb. per acre, during the first-crop season; and Lo Shu Ngar yielded 408 catties per dau chung, or 3,264 lb. per acre, in the second-crop season. The two crops yielded a total of 783 catties per dau chung, or 6,264 lb. per acre, per annum. After rigorous selection 10,000 lb. each of these varieties was made available for distribution.

Introduction of Exotic Rice Varieties

53. On the advice of the F.A.O. Regional Rice Officer samples of five varieties, Sigadis, CH42, CH45, CH46 and CH1039, were obtained. These, with previous introductions B76, T1145 × Satika, N136, TKM6, CO13 × CO25, G.S.336, G.S.337, S.R.26B, K.O.A., Chiala 1 and Frost, were planted at Castle Peak. Sigadis failed to set seed. No variety showed improvement over the standard local variety, Lo Shu Ngar.

Interaction between Varieties and Nitrogen

54. Previous research has demonstrated that, generally throughout the territory, paddy responds to dressings of nitrogen but there is no

marked response to either phosphorus or potash. It has also been confirmed that heavy applications of nitrogen tend to produce excessive vegetative growth, encourage lodging and increase susceptibility to infection by 'blast', *Piricularia oryzae*. Information on interaction between varieties and nitrogen levels has been lacking however, and, to resolve the issue, suitable statistical trials were initiated in 1958.

55. Experiments continued into the third year, at Castle Peak, in both crop seasons. The design was split plot with four main-nitrogen-treatments and ten sub-variety-treatments; main plot size 10′ × 25′; sub-plot 2.5′ × 10′. Nitrogen treatments were: Control—no nitrogen; 30 lb. nitrogen per acre; 60 lb. nitrogen per acre: and 90 lb. nitrogen per acre. Nitrogen was applied in the form of Ammonium Sulphate. A standard treatment of 30 lb. of P_2O_5, as Superphosphate, and 15 lb. of K_2O, as Muriate of Potash, were applied to each plot. Annual variation in weather conditions to a certain extent affected response; results over the three years are summarized as follows:

56. *First Crop Season:*

In 1958 all ten first-crop varieties showed highly significant response to all nitrogen treatments—except Castle Peak No. 2 at 30 lb. nitrogen per acre. Early Sze Miu, Castle Peak No. 2, Chan Chu Cho, Shek Kuk and Leung Cho Kuk showed highly significant response at 60 lb. nitrogen per acre: and Fa Yiu Tsai, Fa Loh Pak, Castle Peak No. 4, Kam Bau Ngan and Chat Tam Chung likewise at 90 lb. nitrogen per acre. Early Sze Miu gave significant response, and Castle Peak No. 2 and Leung Cho Kuk gave highly significant response at 60 lb. and 90 lb. per acre, compared with 30 lb. per acre. Chat Tam Chung showed a significant response at 90 lb. nitrogen per acre, over treatments at 30 lb. and 60 lb. nitrogen per acre.

In 1959 Chan Chu Cho showed no response to nitrogen; Castle Peak No. 2 gave highly significant response to nitrogen at 30 lb. and 60 lb. per acre: and the other eight varieties gave significant response at 60 lb. nitrogen per acre. Fa Yiu Tsai and Castle Peak No. 4 showed significant increases, and Early Sze Miu, Kam Bau Ngan, Leung Cho Kuk and Chat Tam Chung gave highly significant increases, at 60 lb. nitrogen per acre over yields at 30 lb. nitrogen per acre.

In 1960 yields in control were higher than during the previous two years; Castle Peak No. 4 gave highly significant response and

Chat Tam Chung gave significant response to nitrogen at 30 lb. per acre; Leung Cho Kuk gave significant response to 60 lb. nitrogen per acre; all other varieties gave either no or negative response. The variety Kam Bau Ngan gave the highest yield, at 90 lb. nitrogen per acre in the first year and at 60 lb. nitrogen per acre in the second year. Fa Loh Pak gave the highest yield at 30 lb. nitrogen per acre in the third year, this response was not significantly better than control.

57. *Second Crop Season:*

In 1958, of the ten second-crop varieties tested, Fall Crop Sze Miu showed no response to nitrogen; Hon Lo Chim gave highly significant response to nitrogen at 30 lb. and 60 lb. per acre; likewise, Kuk Tsai and Lo Shu Ngar at 60 lb. per acre; Cha Tsai and Heung Keng Lor at 90 lb. per acre; Wong Huk Chai Mei, Pak Huk Chai Mei and Tai Lor gave highly significant response at 60 lb. nitrogen and 90 lb. nitrogen per acre; Sam Sin Kuk gave highly significant response up to 90 lb. nitrogen per acre. In comparison with yields at 30 lb. nitrogen per acre, the varieties Kuk Tsai and Tai Lor showed significant increases, and Lo Shu Ngar and Sam Sin Kuk gave highly significant increases at 60 lb. nitrogen per acre.

In 1959 the varieties Sam Sin Kuk and Tai Lor gave no response to nitrogen; Wong Huk Chai Mei showed highly significant response at 60 lb. nitrogen per acre; Hon Lo Chim gave highly significant response up to 60 lb. nitrogen per acre; Pak Huk Chai Mei and Fall Crop Sze Miu responded significantly to nitrogen at 30 lb. per acre and gave highly significant response up to 90 lb. per acre; Heung Keng Lor showed significant response to nitrogen at 60 lb. per acre and highly significant response at 90 lb. per acre; Kuk Tsai, Lo Shu Ngar and Cha Tsai gave highly significant response to nitrogen at 60 lb. per acre and 90 lb. per acre. In comparison with yields in response to nitrogen at 30 lb. per acre, Kuk Tsai gave highly significant increases up to 90 lb. per acre; Wong Huk Chai Mei and Lo Shu Ngar likewise at 60 lb. per acre and at 90 lb. per acre respectively; and Cha Tsai showed a significant increase at 90 lb. nitrogen per acre.

In 1960 the varieties Lo Shu Ngar and Heung Keng Lor showed significant response to nitrogen at 30 lb. per acre, and highly significant response at 60 lb. and 90 lb. per acre levels;

Hon Lo Chim responded significantly at 30 lb. nitrogen per acre; Wong Huk Chai Mei gave significant response at 30 lb. nitrogen per acre and highly significant response at 60 lb. nitrogen per acre; the other six varieties all showed highly significant response to all nitrogen treatments. Fall Crop Sze Miu and Sam Sin Kuk gave significant increases and Lo Shu Ngar gave highly significant increase at 90 lb. nitrogen per acre in comparison with the yields at 30 lb. nitrogen per acre.

In 1958 Sam Sin Kuk gave the highest yield but showed no significant increase over the variety Hon Lo Chim at 60 lb. nitrogen per acre. *In 1959* Hon Lo Chim yielded the best at 60 lb. nitrogen per acre. *In 1960* Cha Tsai gave the highest yield, but showed no significant increase over the varieties Pak Huk Chai Mei, Sam Sin Kuk and Heung Keng Lor at 90 lb. nitrogen per acre.

Interaction between Nitrogen and Spacing

58. An experiment was laid down to test interaction between nitrogen and spacing on rice. The design was split plot with four main-nitrogen-treatments and four sub-spacing-treatments; main plot size 10′ × 40′; sub-plot size 9′ × 9′. Nitrogen treatments were: Control—no nitrogen; 30 lb. nitrogen per acre; 60 lb. nitrogen per acre; and 90 lb. nitrogen per acre. Nitrogen was applied in the form of Ammonium Sulphate. A standard treatment of 30 lb. of P_2O_5, as Superphosphate, and 15 lb. of K_2O, as Muriate of Potash, were applied to each plot. Spacing treatments were: 12″ × 12″, 9″ × 9″, 6″ × 6″ and 9″ × 4½″ with uniform plant number per plot.

59. *Results—First Crop 1960.* 30 lb. nitrogen per acre gave the most significant yield; 90 lb. nitrogen per acre gave the lowest significant yield. Of the 4 spacing-treatments 9″ × 9″ gave a significantly higher yield than 6″ × 6″ and 9″ × 4½″. The yield difference between 9″ × 9″ and 12″ × 12″ was not significant. Interaction between nitrogen and spacing failed to attain significance.

60. *Results—Second Crop 1960.* 90 lb. nitrogen, and 60 lb. nitrogen, per acre, gave significantly higher yields than control. Differences between 90 lb. nitrogen, 60 lb. nitrogen, and 30 lb. nitrogen, per acre were not significant. 6″ × 6″, 9″ × 9″ and 9″ × 4½″ gave significantly higher yields than 12″ × 12″. Differences between 6″ × 6″, 9″ × 9″

and 9″ × 4½″ spacings, and interaction between nitrogen and spacing were not significant.

Fertilizer Trials on Typical Rice Soils

61. Experimental work on the fertilizer requirements of rice has been conducted on departmental stations since 1950. The soil survey confirmed previous suspicions, first put forward in 1957, that these soils were not truly representative. Since 1958 experimental work on fertilizer requirements of rice has been replicated on major soil types throughout the territory. The lay-out and results of these trials are recorded in Appendix 8.

Paddy Seed-Dressing Trial

62. A 5 × 5 Latin square experiment was laid down to compare the relative effectiveness of 'Agrosan 5W', 'Harvesan', 'Boot's 1833', 'Boot's 1834' in control of *Piricularia oryzae* with untreated check plots. Two rice varieties very susceptible to 'blast', Fa Loh Pak, first crop, and Wong Huk Chai Mei, second crop, both were selected. Results were not significant.

Week Killers in Rice

63. A simple trial was carried out to compare the relative effectiveness of 2, 4-D and M.C.P.A. in the control of weeds in rice. Experimental design was a randomized block, and straight-forward comparison was made between untreated control and the two treatments. The predominant weeds 'Ap Sit Ts'o' (*Monochoria vaginalis*), 'Pang Ki Ts'o' (*Alternanthera sessilis*) and 'Jar Cheung Ts'o' (*Oxalis violacea*) were susceptible to the two weed killers. Treated plots, however, gave significantly lower yields than control.

FIELD CROPS

64. *Sweet Potatoes.* Trial on selection of sweet potato varieties were limited to six varieties for root and six for vine production. Varieties differed greatly in resistance to frost, and it was noted that varieties 190, 7, 213 and 223 withstood low temperature conditions best.

65. *Tea.* Three simple observational trials on tea commenced in 1960:

(*a*) *spacing trial:* three spacings tested were: two seedlings at 4′ × 4′, two seedlings at 4′ × 1′ and two seedlings at 5½′ × 1′;

(*b*) *varietal trial:* eight varieties of tea were planted for observation, records to be taken of size of bush, yield of variety; and

(*c*) *trimming trial:* this trial was designed to compare effect on yield of tea of pruning to table-form with loft-row form.

66. *Miscellaneous Crops.* Investigational work at the Ta Kwu Ling Dry Land Experimental Station, situated in a drier belt of country where farming practice is limited by environmental conditions, was mainly on introduction of crops and dry land farming techniques. Of the crops tested, sweet potato, fox-tail millet, sorgham, soya bean, cowpea, suger cane, Chinese radish and cassava did very well in the wet season. Investigation into improved land utilization at Tai Mo Shan High Altitude Experimental Station continued.

Fodder Crops

Legumes

67. Observations on growth of legumes continued. Desmodium (*D. intortum*) persisted up to the end of the dry season while Centro (*Centrosema pubescens*) and Kudzu (*Pueraria phaseoloides*) became stunted. Townsville Lucerne (*Stylosanthes phaseoloides*) did not thrive during the misty weather in spring but withstood the low temperatures and grew well in the dry season. Under local conditions, all these varieties were shy seeders and have to be propagated by cuttings. A local strain of Pigeon Pea (*Cajanus cajan*) grew better than that from Sierra Leone.

Comparison of Six Fodder Grasses

68. A trial was laid down, at Ta Kwu Ling Dry Land Experimental Station, testing six varieties of grass, Local Guinea (*Panicum maximum*), Sigor Guinea (*P. maximum*), Sweet Sudan (*Sorgham sudanense*), Columbus (*S. almum*), Elephant (*Pennisetum purpureum*), and Thin Napier (*P. polystachyon*). A 6 × 6 Latin square layout with a plot size of 20′ × 20′ was used. Results to date are that Elephant grass gives the highest yields and shows better resistance to the cold, dry weather than the other grasses.

(B) Market Garden Research

69. Whilst the main centre for investigational work remained at the Market Garden Experimental Station. Sheung Shui, seed selection and multiplication in isolation at high altitude, 2,000 feet Tai Mo Shan, continued to do very well. Selection of indigenous vegetables, i.e. Chinese white cabbage, Chinese kale and Chinese radish, started last year showed promise. Observations on the growth of cool season, western type

vegetables, carried out over the past few years, confirm that the cropping season can be extended for tomatoes, beans, peas and cauliflowers grown at higher altitude; at these altitudes rhubarb, leeks, carrots and cabbages grew during the year.

Indigenous Vegetables

70. Selected varieties now released, i.e. hairy squash, string beans and spinach, were warmly welcomed by growers. Selection continued in the case of white cabbage, green cucumber and Chinese kale; these cultivars were selected either in isolation or under controlled pollination. The following comments record a brief summary of achievement to date.

Chinese White Cabbage (Brassica chinensis var. communis) (Paak Tsoi)

71. Selective breeding of the two cultivars, described in the previous annual report, continued. Cropping from seed selections raised in isolation at high altitude gave the best results, plants being more uniform in shape, colour and maturity.

Chinese Flowering Cabbage (Brassica chinensis var. communis) (Paak Tsoi Sum)

72. Of the four main groups of varieties, i.e. 40, 50, 60 and 80 day cultivars, only one of the 60-day variety showed promise. Suitable material in the other varietal ranges was sought.

Chinese Kale (Brassica oleracea var. acephala) (Kai Laan Tsoi)

73. Two improved varieties were selected; one for early cropping and one for late cropping. Both varieties possess wrinkle leaves preferred locally. For purity, seed stock was maintained at Tai Mo Shan.

Chinese Radish (Raphanus sativus var. longipinnatus) (Loh Pak)

74. Two varieties, introduced from Taiwan privately, proved to be among the best plants, having uniform roots, maturity and higher yields. These two varieties also commanded a better market price, being preferred over western type and Japanese varieties.

Chinese Green Cucumber (Cucumis sativus) (Tseng Kwah)

75. A number of cucumbers, including local selections and introductions, have been tried previously with disappointing results. Twenty two varieties were collected for observation, nine from Japan. The late arrival of the latter did not permit adequate trial; observations thereon continue. Better selections of the remaining thirteen varieties were hand-pollinated to maintain purity and for further trials.

Other Local Crops

76. Cultivars of many other local vegetables, including garland chrysanthemum (*Chrysanthemum coronarium*); water spinach, (*Ipomoea reptans*); Chinese spinach, (*Amaranthus spp.*); Chinese lettuce (*Lactuca sativa*) and bitter cucumber (*Momordica Charantia*); were collected for preliminary observations.

Observations on Introduced Vegetables

77. *Tomato Variety Trials*—A simple observational trial was laid down with twenty five varieties from Hawaii, the United Kingdom and the United States of America. Results were poor due to severe infection by mosaic, apparently introduced with the Hawaiian varieties. Results had to be discarded.

78. *Carrots.* All eight varieties under observation did well; the varieties 'Nantes', 'Imperator' and 'Morse's Bunching' were preferred for local markets.

79. *Peas.* This crop grows best during the dry cool season; dwarf varieties were earlier and much more satisfactory than tall varieties. Of twelve varieties tested five proved promising, the best being 'Early Perfection' producing 226 catties per dau chung 85 days after sowing. 'Morse's 55' and 'Morse's Progress 9' were also high yielders. Hawaiian varieties demonstrated the best resistance to powdery mildew, particularly later in the season. Plants were smaller and bushier. As there is a local preference for young shoots as a marketable vegetable, it is intended to investigate this aspect of the crop in future.

80. *French Beans.* Pole beans did better under spring conditions and dwarf beans did better late in the year. It was noted, from observations on ten varieties of dwarf beans, that:

(*a*) 'Tender Best' was the best yielder and of high quality.

(*b*) 'Tennessee' green pod was the earliest but did not command a high price because of the flat pod.

(*c*) There was a marked preference for the yellow-pod variety, 'Sure Crop'.

(*d*) Generally, local market preference is for the round pod type of beans: 'Tender Best' and 'Tendergreen'.

81. *Cauliflowers.* As indicated in previous annual reports, the early type of cauliflower does best over the cool, dry season. 'Early Snowball X' and 'Y' were outstanding varieties this year. Magnesium and borax deficiencies were noted in the early crops and responded to treatment.

82. *Cabbage.* Early varieties, 'First Crop', 'Golden Acre' and 'Copenhagen Market', did extremely well and obtained commanding market prices. Hybrid cabbages from Japan, 'O-S Cross' and 'Takii Hybrid F_1', both gave very good yields and were uniformly mature. Twelve varieties were selected for future observations comparing the economics of early and late production.

83. *Lettuce.* Poor germination restricted work with this crop; only four varieties did well out of fifteen selections. These were 'New York 515', 'Great Lake 6238', 'Favourate' and 'A_1'.

84. *Flowers.* Collection of a suitable range of cultivars within different species continued. Of the fifty six rose varieties imported from Holland, sixteen were selected for further propagation by grafting onto local wild rose stock. Techniques were not satisfactory, with only 30% success, and methods for improvement were sought. Vegetative propagation of the selected varieties was likewise restricted and only two varieties were found to establish themselves fairly easily; these were 'Big Daddy' and 'Diamond Jubilee'.

(C) FRUIT RESEARCH

85. Trials were started, within the Tai Po Kau Forest Reserve, testing varieties of citrus on differing root stocks. In due course, it is expected that the better varieties will provide propagating material. Following the policy of multiple land use, a trial was initiated, at Sai Kung, integrating fruit trees within an established forest nurse crop; the trees established were transplants approximately five years old and mortality was low only some 5% in 250 trees established.

86. The growth of citrus and other fruit trees at 2,000 feet, Tai Mo Shan High Altitude Station, was improved by providing a sprinkler system of overhead irrigation throughout the dry season; and by deepening drainage to remove surplus water, during the wet season, from locally impeded conditions. In early March small quantities of fruit were harvested from Chiu Kam, tangelo and tangerine. At the Dry Land Experimental Station, young trees of litchi (*Litchi chinensis*), longan (*Euphoria Longana*), guava (*Psidium Guava*), and Dwarf Cavendish banana were established for observational trials.

(D) PLANT PEST AND DISEASE RESEARCH

87. The seasonal incidence of plant pests and diseases was recorded; life histories of the more important species were studied in relation to control measures, with a view to increasing the latter's efficiency.

Fungicidal treatment of rust on chives continued; of nine fungicides tested, Dithane Z78 (zine ethylene bisdithiocarbamate) and Dithane M-22 (manganese ethylene bisdithiocarbamate) gave fairly good control. Powdery mildew (*Erysiphe polygoni*) on garden peas was serious in misty weather, from January to March. Karathane WD was most effective in controlling the disease; compared with five other fungicides. The effect of various insecticides on Citrus Leaf Miner (*Phyllocnistis citrella*) was studied; Diazinon 60E, sprayed weekly at 1:800/1000, gave the best control. In observational trials Rogor 40, 1:1000, gave the best results in controlling Red Spider Mite on calamondin.

(E) INLAND FISHERIES RESEARCH

88. Investigations were directed to practical aspects of the industry, and related economic surveys with operational research. Approximately 1,198 dau chung, (200 acres), of tambaks, brackish and fresh water paddy land were converted into forty six new fish ponds. The total area devoted to fish farming was 4,753 dau chung, (approximately 792 acres).

89. The situation of fish fry imports is summarized in paragraph 20. Local production was, more or less, confined to Grey Mullet and Common Carp and the 1961 season (January to March) was very satisfactory for the catching of Grey Mullet fry in the coastal waters of the Colony. Approximately 7,800,000 fry were caught, compared with 1,500,000 in the previous year, at a price averaging some 10¢, the lowest recorded since 1957. Brackish-water fish ponds were fully stocked. About 500,000 Common Carp fry were bred and hatched between January and March; some 360,000 fry were sold for fish pond stocking.

90. Two fish ponds, 1.7 acres, at Au Tau Pond Fish Experimental Station were used to rear Grey Mullet and Grass Carp. Growth-rates were recorded and observations continued. Two local plants Yin Sai (*Pluchea indica Less.*) and Kau Kai (*Clerodendron inerme Gaertn.*) showed promising results in protecting earth bunds from erosion and collapse, especially during flood.

PART 4

ANIMAL INDUSTRY DIVISION

Officer-in-charge: Mr. D. M. CORBETT, M.R.C.V.S., M.R.S.H.—
Senior Veterinary Officer

91. The activities of this Division continued to expand with the increasing demands for advice and assistance received from livestock

owners throughout the territory. To achieve policy objectives the Division provides three inter-related services: (i) the *Extension Service,* which provides specialist advice and extension work on animal husbandry, and also undertakes disease control and prophylaxis, (ii) the *Research Service,* which investigates, resolves and evaluates animal husbandry problems prior to the adaptation of results for extension purposes, and (iii) the *Regulatory Service,* which undertakes the enforcement of health requirements and inspectorate services required by Ordinance.

EXTENSION SERVICE

92. For extension purposes the territory is divided into circles comparable with those of the Agricultural Division. Livestock Extension Officers are responsible for diagnosing, reporting and treating outbreaks of disease; carry out routine extension work in respect of preventive treatment, animal husbandry generally and also undertake periodic surveys and special investigations as required. There are two officers who specialize in poultry management and disease control.

Livestock Census

93. A census of the livestock population of the New Territories made during the last quarter of 1960 revealed the following data compared with the previous year:

TABLE 3

	1959-60		*1960-61*	
Dairy Cattle ..	2,979		3,000	
Brown Cattle ..	14,000		15,000	
Water Buffaloes ..	2,015		2,000	
Pigs	150,000	(including 18,000 breeding stock)	184,000	(including 20,000 breeding stock)
Sheep	20		15	
Goats	350		400	
Rabbits	720		450	
Chickens	2,000,000	(including 148,000 local breeding stock & 20,000 Leghorns)	3,000,000	(including 300,000 local breeding birds & 20,000 Leghorns)
Geese	35,600	(including 5,300 breeding stock)	40,000	(including 6,000 breeding stock)
Ducks	207,000	(including 7,000 breeding stock)	250,000	(including 10,000 breeding stock)
Turkeys	430		780	
Quails	9,050		15,000	
Pigeons	53,500	pairs (including 24,000 pairs breeding stock)	100,000	pairs (including 40,000 pairs breeding stock)

94. Both the pig and poultry industries were economically stable throughout the year and there was only slight fluctuation in the market prices of livestock and feeding stuffs.

Livestock Improvement Plan

95. This scheme continued to expand and 116 units were added; at the end of the year there were 462 units in 102 villages establishing widow farmers as pig-raisers. Credit facilities for the purchase of feed by farmers participating in this scheme were provided from the Kadoorie Agricultural Aid Loan Fund. In association with these pig units, one new boar centre was established to make the total at the end of the year twenty, suitably distributed throughout the territory. 1,638 sows were served from these centres during the year. Both weaners and porkers produced under this Plan were in great demand on local markets. 124 weaners were sold to the Kadoorie Agricultural Aid Association for the stocking of new units and distribution to other assisted farmers. A high standard of husbandry has been maintained with the advice and guidance of a small team of officers of the Department. This is shown by the fact that despite heavy losses during typhoon weather and an outbreak of Foot and Mouth Disease in several units, of 13,348 piglets born mortality was only 9.6%.

Disease Control

96. During the year staff attended 9,993 outbreaks of disease involving 19,618 larger animals and 531,703 poultry. Preventive inoculation of livestock was also undertaken by mobile teams within this service and comparative data of vaccine used during the recent four years is tabulated herewith:

TABLE 4

NUMBERS OF INOCULATIONS CARRIED OUT

	1957-58	*1958-59*	*1959-60*	*1960-61*
Rinderpest	9,906	11,073	11,627	11,066
Swine Fever	16,580	20,180	36,180	54,120
Newcastle Disease (Ranikhet)	3,574,000	4,351,000	8,206,000	11,306,500
Newcastle Disease (F. Strain)	553,550	1,622,080	2,423,700	2,872,000
Black-leg	—	534	267	159
Foot & Mouth Disease ...	—	-	2,127	1,813
Brucellosis	—	—	1,650	540
Anthrax	—	—	1,650	1,626
Rabies	10,310	12,122	13,660	10,038
Laryngo-tracheitis	—	—	—	2,600

In June the price of Swine Fever vaccine was increased from 30c. to $1 per dose and intranasal Newcastle Disease vaccine from 3c. to 12c. per

ten doses. This caused only a temporary decrease in issue, which has now been replaced by an even greater demand. This increase in the acceptance of preventive inoculation was most encouraging and has had marked beneficial effects upon the general health of livestock, which in turn is reflected in the economy of the industry as a whole.

97. *Foot and Mouth Disease.* This disease decreased in incidence in the New Territories and losses were mainly in suckling pigs, the disease being very mild in other stock. Samples were taken from all reported local outbreaks and sent to Pirbright Laboratory for type classification. Type 'O' only was found. Vaccines, Types 'A' and 'O', were imported from Holland and used on Government stock, by one dairy farm and one pig-breeder; 1,813 animals were immunized. The incidence of this disease amongst imported cattle held in quarantine lairages decreased considerably. During the year a total of 1,445 suspected cases were found and eleven carcases were condemned.

98. *Anthrax.* No Anthrax was found in local stock and only two cases were seen in imported cattle in the quarantine lairages.

99. *Rinderpest.* No cases were reported, making this the eleventh consecutive disease-free year. During the year 11,066 animals were immunized by departmental staff, representing a decrease of 561 animals compared to the previous year.

100. *Ephemeral Fever.* No outbreak of this disease was reported.

101. *Black-leg.* No cases of Black-leg were reported. 159 animals were immunized in the Pui O area, South Lantau, where an outbreak occurred during the preceding year.

102. *Swine Fever.* 163 outbreaks affecting 1,541 pigs were investigated. Although there were only nineteen deaths, loss of condition and unthriftiness of surviving piglets caused serious economic loss to farmers concerned. All outbreaks were in uninoculated animals. Preventive inoculations against this disease increased by 17,940, to a total of 54,120. The increased cost of the vaccine, from 30c. to $1 per dose, only temporarily affected its use.

103. *Swine Erysipelas.* Five outbreaks affecting fifteen pigs were reported, and all responded well to treatment. There were no deaths.

104. *Virus Pneumonia of Pigs.* There was a marked decrease in the incidence of this disease and only 542 outbreaks involving 1,627 pigs were recorded. Pig-keepers are beginning to realize the importance of higher standards of animal husbandry in reducing the economic loss from this disease.

105. *White Scour of Piglets.* 35,480 cases in suckling pigs were reported and investigated. Where early treatment was adopted losses were slight.

106. *Gastro Enteritis of Pigs.* This continued to be the most common complaint in adult pig stock. Following advice, regarding feeding and treatment, only forty deaths were recorded in 1,973 outbreaks involving 10,240 pigs.

107. *Paralysis of Sows.* 160 cases in lactating sows were treated with subcutaneous injections of calcium borogluconate and the feeding of a mineral supplement. Only ten animals failed to respond to treatment.

108. *Newcastle Disease of Poultry.* In spite of the greatly increased use of vaccines, 150 outbreaks involving 81,287 birds were reported. All outbreaks were in unprotected flocks and there was a high mortality. The Department imported 2,872,100 doses of Weybridge 'F' Strain Nasal Drop Newcastle Disease vaccine from Thailand and 11,306,500 doses of Ranikhet vaccine from Malaya. 4,135,000 birds were inoculated with Ranikhet vaccine by departmental staff and the remaining supplies were issued on sale to farmers for administration by themselves. These importations constitute an increase of 3,100,500 doses of Ranikhet vaccine and 448,400 doses of 'F' Strain vaccine compared with 1959-60. The demand for the Thailand vaccine quickly recovered from the initial 'shock' of an increase in price from 3c. to 12c. per ten doses.

109. *Pasteurellosis of Birds.* Although only thirty six outbreaks were reported, the mortality was high, being 50% of the 5,505 birds affected.

110. *Coryza of Fowls.* This disease was again widespread; and was especially severe on those farms where intensive systems of rearing and fattening were practised in conjunction with low standards of management. 634 outbreaks involving 52,018 birds were investigated.

111. *Fowl Pox.* Sixty four outbreaks involving 3,987 birds were recorded.

112. *Coccidiosis.* The use of coccidiostats is being increasingly adopted by larger producers, but diagnosis was requested in 268 outbreaks involving 15,338 chicks.

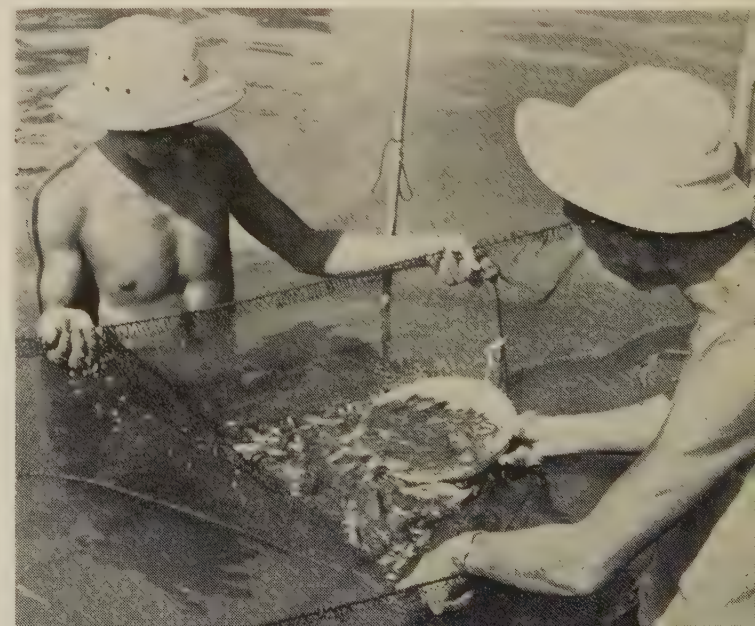
113. *Laryngo-tracheitis.* A severe outbreak of this disease occurred during the period August to November 1960. 353 outbreaks involving 314,564 birds were investigated and in which there was an estimated mortality of 21%. Vaccine imported from America was widely used after preliminary trials in the affected areas had proved its efficacy.

Rice continues to be the most widely grown crop. Here work at Castle Peak shows: foreground, seed multiplication; midground, variety and fertilizer interaction trial; and background, pot culture in cage.

Vegetable farming continues to increase in importance. Here a Hakka woman pauses to record her comments for the 'Farmers' Week' programme produced jointly by Radio Hong Kong and the Agriculture and Forestry Department.

Successful pig experiments, rearing breeding stock in arks on higher and poorer land, have every indication of becoming increasingly important in future.

Pond fish farming continues to increase in importance and more than 200 acres were newly opened up in 1960-1. Fish farmers, right, collect grey mullet fry from their nursery pond prior to transferring to their main production ponds.



114. *Veterinary Diagnostic Laboratory.* There was a marked increase in the number of specimens submitted for examination during the year. 1,743 microscopic examinations, 3,023 cultural examinations, ninety one agglutination tests and 4,659 biochemical reactions were completed. In addition the Colony's supply of Rinderpest vaccine, amounting to some 21,000 doses, was produced. A regular supply of laboratory animals was maintained, principally for departmental use but also occasionally for use by the Institute of Pathology, various hospitals and schools.

RESEARCH SERVICE

115. Research and investigation were carried out on the Livestock Experimental Stations and Sub-stations at Castle Peak, Sai Kung and Ta Kwu Ling. Apart from an outbreak of Laryngo-tracheitis in poultry on Castle Peak Livestock Experimental Station, all the livestock remained in good health.

Pigs

116. Herds of Middle White, Berkshire, Large White and Improved Local strain pigs were maintained on departmental stations for selective breeding and experimental purposes, and to provide farmers with improved stock. All pig stock were inoculated against Swine Fever and Foot and Mouth Disease; and were regularly tested for evidence of *Brucella suis* infection. No reactors were found to the latter test.

117. During the year 114 sows farrowed 843 piglets. The demand for improved stock increased greatly and 510 pigs were sold to farmers who had proven their high standards of good husbandry. 153 pigs were sold to the Kadoorie Agricultural Aid Association for issue to participants in the Livestock Improvement Plan. The remaining stock were culled, used for experimental purposes or incorporated into breeding programmes.

118. *Artificial Insemination.* The results of work on artificial insemination of pigs continued to be most encouraging and the service was further extended to the public. 707 sows were artificially inseminated, as compared with 101 during the previous year. From conceptions recorded prior to the 31st March, 597 head or 96.13% conceived out of 621 inseminated. Of these 84.70% conceived at the first insemination, 9.98% at the second, 1.12% at the third and .32% at the fourth. Twenty four sows or 3.8% failed to conceive due to various abnormalities. There has been a steady increase in demand for this

service. Semen is now available from selected strains of Berkshire, Middle White, Large White and Improved Local boars.

119. *Cross Breeding.* The cross-breeding experimental work was extended, during the year, to include crossing local females with a Large White boar. The resultant cross proved satisfactory, yielding an average litter number of 10.3 as compared with the Berkshire and Middle White controls which yielded 8.3 and 9.7 respectively. At 210 days, the Large White X Local weighed 102 catties compared with the Berkshire and Middle White crosses, which weighed 89.4 and 99.3 catties respectively. Killing out percentages were, Large White cross 80, Berkshire cross 81.4 and Middle White cross 81.2.

120. Since the results of cross-breeding trials were made known to pig-breeders, the local sow has regained popularity as a prolific and generous mother. Departmental stations have only been able to partially meet demands for stock, although, from the newly established herd of improved local strain, 258 breeding stock were sold.

121. *Poultry.* The Government maintained a flock of White Leghorns for the production of eggs for laboratory use and hatching purposes. Flocks of other breeds, including Cantonese, Wai Chau, Barred Plymouth Rock, Brown Leghorn, New Hampshire and Mikawa, were maintained for experimental and demonstration purposes. Flock improvement by selection on rigid standards of performance and purity continued during the year.

122. Leghorn and New Hampshire day-old chicks were imported from Japan and growth-rate and egg production were recorded under local conditions. Two strains of White Rock were hatched from eggs imported from America. Comparative growth-rates were recorded and stock are now under trial for egg production. Reciprocal crossing with improved local birds is being undertaken.

123. All poultry stock on departmental stations were regularly tested for Salmonellosis and no reactors were found. All stock were inoculated at one day of age with Newcastle Disease Nasal Drop 'F' Strain vaccine, at four weeks with Ranikhet vaccine, at six weeks with Laryngotracheitis vaccine, and at two to three months with Fowl Pox vaccine.

124. *Cattle.* A total of sixteen working cattle and eleven buffaloes were maintained on departmental stations. Six cattle were sold to the Kadoorie Agricultural Aid Association. All cattle were inoculated against Rinderpest and Foot and Mouth Disease.

125. *Sheep*. The flock maintained at Castle Peak Livestock Experimental Station, for laboratory purposes, increased to eighteen head.

REGULATORY SERVICE

Rabies Control

126. By Ordinance all dogs in the territory are required to be licensed yearly and immunized against Rabies every third year. As a result of enforcement of these controls, the Colony remained free from Rabies for the fifth consecutive year. Owing to contiguity with the Asian continent and the increasing importation of dogs, both by residents and people in transit, controls must continue to prevent the re-introduction of the disease.

127. Eleven inoculation and licensing centres were in operation during the year and, in addition, three mobile units were active in covering the more remote areas. This organization ensured that inoculation and licensing services were available to the public with the least possible inconvenience. One dog control unit, co-operating with the Police, was fully engaged in the impounding of stray and biter dogs. Due to an apparent increase in the number of stray animals, kennel accommodation was often inadequate. It has been agreed that new quarantine and observation kennels will be built in Kowloon only, and a site has been selected convenient both to the airport and harbour. A total of 10,038 dogs were licensed and inoculated, and 5,914 licensed only, during the year. 15,516 stray and unwanted cats were received for destruction, and 2,261 stray dogs were collected; of these 424 were subsequently destroyed having not been claimed. 2,383 biter dogs were held for observation, of which 1,824 were returned to their owners, five were adopted, 533 were destroyed and sixteen died. (See Appendix 12 for further details).

Animal Quarantine

128. Officers of the Division were responsible for the inspection at point of entry and the supervision of transport within the Colony of all animals imported for slaughter. During the year inspection staff boarded some 662 vessels importing some 315,800 swine and 70,400 cattle to this territory from China, Thailand, South Vietnam, Cambodia, Indonesia, Taiwan, Okinawa, South Korea and Australia. Further inspectorate duties were carried out in respect of all animals arriving overland. In addition, a total of 216 dogs, cats and other animals were quarantined and examined upon import.

129. During the year a total of 1,223,432 swine, 129,973 cattle and 13,006 goats were admitted to quarantine lairages for subsequent slaughter; of these 293,806 pigs and 4,948 cattle were of local origin. These figures represent a decrease of 35,895 pigs and 18,709 cattle imported compared with imports for the previous year. Admission of local stock for slaughter increased, compared with the previous year's figure, by 45,318 pigs and 1,702 cattle. Of the local cattle slaughtered for consumption, 322 were discarded dairy cattle; 659 discarded dairy calves and 3,967 local brown cattle and buffaloes.

New Territories Abattoirs

130. A total of 146,951 pigs and 16,899 cattle were slaughtered in rural abattoirs during the year. These figures include 6,060 cattle and buffaloes imported from Australia and 920 buffaloes imported from Indonesia and slaughtered at the quarantine depot/abattoir at Tai Pak, Lantau Island. Quarantine enforcement and meat inspection were carried out by staff of the Department at Yuen Long, Tai Po and Tai Pak abattoirs.

Dairies

131. As at the 31st March, 1961, there were 3,226 cattle in the twenty licensed dairies throughout the Colony. With the exception of the Trappist Monastery Dairy on Lantau Island and two dairies located near Tsuen Wan (New Territories), these dairies are concentrated within the urban area. During the year all dairy stock were tuberculin tested; there were thirteen reactors (0.4% of the total tested). These animals were slaughtered and compensation paid.

132. Resettlement projects have made it necessary for fourteen of the dairies in the Diamond Hill area to seek alternative sites. Negotiations are in progress to allocate areas in the New Territories to those wishing to continue in the dairy business.

Preservation of Wild Life

133. During the year the three Game Wardens were actively engaged in patrol duties. With the co-operation of the Police considerable success has been achieved in suppression of illegal trapping of wild birds. Twenty three net traps were seized and prosecutions were undertaken where offences had been committed. Under the Wild Birds and Mammals Protection Ordinance applicants for game licences are required to undergo a test in game recognition. During the year, of 492 applicants

407 passed on first test, eighty five failed and forty seven passed on retest. 454 licences were issued.

PART 5

FORESTRY DIVISION

Officer-in-charge: Mr. P. A. Daley, B.Sc. (Wales)—Forestry Officer

134. Government's forestry policy was continued by protecting vegetation on Crown Lands, by afforesting large areas of these lands, and by promoting farm forestry among the farming population. This work was supported by research to discover better tree species and afforestation techniques. Thus the work of the Division fell into three inter-related sections, Crown Lands (protection and afforestation), Extension (farm forestry) and Research.

GENERAL AND CROWN LANDS

Seed Supply

135. The major portion of the planting programme, as in previous years, was dependent upon the collection of suitable local seed. As there were very few mature trees of any species, including the native pine, within the Colony, collection was not very selective. Adequate quantities of the main species required were available, however, and collection yielded the following:

Pinus massoniana	210 lb.
Tristania conferta	39 lb.
Other species (about 60)	376 lb.
Total	625 lb.

Bulk seed supplies were kept in commercial cold storage; this applied especially to pine seed which was not sown until after the summer rain, i.e. about nine to ten months after collection. Small quantities of seed, of thirty five exotic species and amounting to $4\frac{1}{4}$ lb. in all, were received from overseas. This seed was received either as gifts or on exchange basis. Seed of four species, amounting to a total weight of 1 lb. $5\frac{1}{2}$ oz., was sent overseas.

Nursery Work

136. Four-fifths of the total nursery stock were raised in polythene tubes; experience has shown that tubed stock survive, and grow, better

in the field than bare-rooted plants. Tubed stock was easier to maintain, while waiting for favourable weather, and also required less nursery space, a great advantage. The problem of finding soil for the tubes was a constant worry. Larger tubes than those commonly used (two inch diameter) were tried, to produce better root systems, but shortage of soil may prevent their widespread acceptability.

137. Nursery work was concentrated at the main permanent nursery at Tai Lung. Several smaller, temporary, nurseries were closed and field stocks were drawn from Tai Lung.

Plantations

138. As planting work progresses, and stands mature, attention can be increasingly turned to detailed surveys with a view to eventual exploitation of forest produce. Figures quoted hereunder should, therefore, be regarded as provisional.

139. New planting covered 1,466 acres, making an estimated total of 13,378 acres for the whole territory. The position is summarized below:

TABLE 5

Class of Land	*Area under plantation (Acres)*		
	At 1.4.60	*Added during year*	*At 31.3.61*
Forest Reserves	9,765	1,204	10,969
Unreserved Crown Land ...	120	12	132
Forestry Lots	2,027	250	2,277
Total	11,912	1,466	13,378

140. The replacement of failures, and losses due to damage, adverse weather and other natural causes, was estimated as equivalent to some 200 acres. Most losses were due to long spells of dry weather early in the planting season; otherwise establishment and growth was good.

141. The local pine (*Pinus massoniana*) was the chief species used as it seems to be the best pioneer, particularly on exposed sites. Brush box (*Tristania conferta*) was used on better soils and less exposed sites. Other species, planted on a small scale, were:

Acacia confusa
Casuarina equisetifolia
Casuarina stricta
Eucalyptus citriodora
Eucalyptus sideroxylon
Eucalyptus tereticornis

Protection

142. *Forest Offences.* Seventy five persons were arrested for forest offences, compared with thirty four and ninety seven in the previous two years. Details are given below:

TABLE 6

PROSECUTIONS FOR FOREST OFFENCES

Class of Land	No. of Cases	No. of Persons	Fine		Verdict			
			Persons	Amount $	Imprisoned	Cautioned	Bound Over	Dismissed
Forest Reserves ..	4	7	2	10	—	5	—	—
Unreserved Crown Land ..	29	67	23	920	6	31	—	7
Forestry Lots ..	1	1	—	—	1	—	—	—
Total ..	34	75	25	930	7	36	—	7

143. *Fire.* 133 fires were reported and dealt with, and affected a total of 2,302 acres in or near plantations; only 248 acres of young plantations were damaged, the remaining land being under unimproved, natural vegetation. The position is summarized below:

(i) *Classes of land affected (in acres):*

Forest Reserve	845 acres	
Forestry Lots	200 „	
Other Crown Lands	1,257 „	Total=2,302 acres.

(ii) *Type of vegetation affected (acres):*

	Hardwoods	Brush & grass	Conifers	Total
Unimproved natural ...	—	1,218	836	2,054
Plantations	22	6	220	248
Total	22	1,224	1,056	2,302

144. Fire-barriers, half a chain wide and cleared of vegetation, afforded a certain amount of protection to plantations. Ten miles of new barriers were made bringing the total length of permanent barriers to sixty seven miles. As this type of barrier was both costly to maintain and a potential source of erosion, experiments to replace them by belts of evergreen broadleaved trees, *Acacia confusa,* were commenced. It will take several years to determine effectiveness.

145. The fire protection system was reviewed and a master-control plan issued. Headquarters and fire-lookouts were manned 24 hours during the dry season. The public were warned of the dangers and consequences of forest fires, through the press and radio. When fire hazards were particularly high, radio announcements were made in conjunction with daily news broadcasts.

146. *Pests.* The defoliating caterpillar (*Dendrolimus spectabilis*) occurred in two reserves but, with spraying, attacks were minimized. Attacks by these insects do not kill trees but noticeably retard vigour and growth.

Communications

147. Over $1\frac{1}{2}$ miles of the Shing Mun forest access road were completed; one Bailey bridge and one Irish bridge were constructed. The Pat Heung forest access road was maintained. In addition, nearly one mile of new forest paths suitable for motor-cycle access was made, and previously constructed paths maintained. The total length of forest roads at the end of the year was $7\frac{1}{2}$ miles and forest paths totalled forty eight miles.

148. Twenty three field telephone sets, with more than twenty miles of wire, linked forest offices with remoter outposts, fire-lookouts and field nurseries.

EXTENSION

Farm Forestry

149. Early in the planting season there was resistance on the part of certain villagers, to planting up of forestry lots, which are used for grass-cutting and grazing. This indicated a need for a new approach and, towards the end of the year, a review of past work was commenced prior to re-considering policy. A total of 250 acres were planted on the lots of other licensees.

Amenity Planting

150. A total of 9,289 trees were planted along roadsides in the New Territories.

151. These, as well as previously planted trees, were tended throughout the year. 25,249 plants were supplied to the public, institutions and Government departments.

152. 297 applications were received for permission, and in some cases for assistance, to fell or trim old amenity trees now endangering property or interfering with construction. Seventy three permits were issued to applicants to do the work. In one hundred and ninety two cases, mostly caused by Typhoon *Mary*, work was carried out departmentally. Thirty two applications were referred to the Gardens Divisions, Urban Services Department.

RESEARCH

Forestry Botany

153. The site for a new arboretum in the Tai Po Kau Forest Reserve has not as yet been selected. Fresh collections of some 247 species for herbarium specimens were made; 409 specimens were preserved and mounted, and 188 specimens were identified.

Ecology

154. Species lists were compiled for two protected vegetation plots laid out at Tai Po Kau and Castle Peak.

Silviculture

155. Investigations continued with species trials, sample plots, artificial fertilizers, compost, seedling containers, potting mixtures, weed killers and cultural methods. Work was carried out on small scale, in the absence of the Assistant Forestry Officer, studying research methods in Australia.

Soil Conservation

156. Measurement of stream flow and run-off from plots in the Tai Lam Chung catchment area continued.

Utilization

157. No utilization experiments were made during the year.

TIMBER AND FUEL SUPPLY

158. As previously indicated in paragraph 33, the availability of local forest products was negligible in comparison with total requirements. Generally speaking the Colony's timber and fuel-wood supplies were all imported; villagers obtained a certain amount of fuel from local hillsides, in the form of loppings, undergrowth and dry grass. A summary of imports and re-exports of timber and fuel is given in Appendix 13. Divisional staff inspected seventy two consignments of timber for re-export to other countries and issued certificates of freedom from live borers.

PART 6

SUPPLEMENTARY SERVICES

FINANCIAL ASSISTANCE TO PRIMARY PRODUCERS

159. The Department operated the Kadoorie Agricultural Aid Loan Fund for the benefit of farmers and was closely connected with the work of the Kadoorie Agricultural Aid Association.

Kadoorie Agricultural Aid Loan Fund

160. This Fund was established under Ordinance No. 25 of 1955 and was originally limited to $500,000. In 1957 and 1960, the Fund was increased by grants of $750,000 and $500,000 respectively, and at the

end of the current year was capitalized at $1,750,000; for which $250,000 has been contributed by Messrs. Lawrence and Horace Kadoorie and $1,500,000 contributed by Government.

161. The Fund was controlled by a Committee, the Chairman of which was the Director who was also Trustee, which met fortnightly to consider and approve loans and to transact such other business as arose. Staff of the Credit Service undertook loan investigation, disbursement and recovery. There was a Local Credit Officer in each circle, and three Credit Officers on particular projects; including credit facilities concerned with the Livestock Improvement Scheme, and the Kadoorie Agricultural Aid Association. This service was supervised and co-ordinated by a Senior Credit Officer. Secretarial and financial functions were also undertaken. The Secretary of the Department was also Secretary to the Committee. There was extremely close liaison between the Credit Service and all other services of the Department.

162. From the commencement of the Fund until 31st March, 1961, loans amounting to $3,451,181.32 were approved and issued; and loans amounting to $2,285,130.42 have been repaid. The statement of account for the year ending 31st December, 1960, may be found at Appendix 14.

163. Interest-free loans were issued for a variety of purposes; including the purchase of livestock, livestock housing, purchase of feeds, fertilizer, insecticides, seed and planting material, fish fry and farm equipment, and for land development including the construction of fish ponds. Loans did not normally exceed $2,000 and, in fact, averaged $150. The period of repayment varied from six months to two years according to the nature of the loan. Loans were not secured; the applicants' honesty and industry being regarded as more important.

164. Whilst the Loan Fund afforded considerable assistance to farmers, there was still a large degree of dependence on other forms of borrowing; i.e. from professional money lenders and normal trading sources; interest rates differed but were invariably very high. It is hoped that, in time, the Fund will help to reduce interest charges to a more reasonable level.

Kadoorie Agricultural Aid Association

165. This scheme of assistance to farmers of the New Territories, by means of grants in kind, started in 1951. The Department took an increasing interest in the early work and in 1953 became officially associated to provide technical guidance and assistance. The object of the Association is to give financial support to agricultural development

schemes approved and under the general guidance of the Department; and to give assistance to individual farmers.

166. Details of the Association's work were published in a separate report. Departmental staff provided technical assistance and advice; and in many cases directly supervised the following:

(*a*) the distribution of 20,056 bags of cement (about 1,003 tons); for the construction of roads, channels, dams, bridges, wells, water sumps, fertilizer sumps, piers, small reservoirs, retaining walls, sea-walls, pigsties and other farm buildings;

(*b*) the maintenance of K.A.A.A. demonstration orchards and the free supply of fruit tree seedlings;

(*c*) the free distribution of 484 cattle, 35,670 poultry and 1,544 pigs to farmers requiring capital assistance;

(*d*) the establishment of 139 sets of pigsties; the replacement of farm houses and the free distribution of vegetable seed and fertilizer to farmers suffering from natural disasters;

(*e*) the fitting of artificial limbs to amputee farmers;

(*f*) the maintenance and gradual extension of the Farm at Pak Ngau Shek, which supplies pigs, poultry and planting material for distribution.

167. The Association worked in close conjunction with the Department in carrying out the Livestock Improvement Plan referred to in paragraph 95 of this report. K.A.A.A. assisted by providing initial capital.

EDUCATION AND INFORMATION

168. The greater portion of informal education was provided for the public through the extension services of all divisions. Further informal education was provided through various media; including broadcasting, film showing, farm and station visits, the Agricultural Show and special project programmes, such as the 'Tree Planting Festival'. Formal education was given through farmers training schemes.

Farmers Training Schemes

169. Young farmers training courses provided an initial three weeks course in general agriculture, followed by a series of more specialized courses, each of one week's duration, dealing with a particular aspect of farming, i.e. paddy cultivation, pig keeping, market garden crop production, pond fish culture, farm forestry, farm economics, etc. Instruction was given by the appropriate subject-matter specialist

concerned. Administrative arrangements and organization were co-ordinated by the Rural Education Officer. In broad outline, the pattern of courses was similar, morning lectures and discussion periods, followed by afternoon practical work, demonstrations, farm visits and film shows.

170. One general course, held at Silvermine Bay, was attended by eighteen students. The local Rural Committee assisted by providing lecturing facilities and also evinced great interest in the progress of students. Twelve specialized courses were held at Castle Peak (2), Sheung Shui (2), Sha Tin (2), Sai Kung (3), Ta Kwu Ling (2) and Au Tau (1). These courses, covering paddy cultivation, pig keeping, vegetable growing, poultry keeping, farm economics, and pond fish culture, were attended by 172 students. At the end of each course students who reached a satisfactory standard were awarded a certificate of competency.

171. *Farmers Vocational Courses.* As a result of popular demand vocational courses were provided for adult farmers. This was an important development in more formalized training of established farmers. Four courses were held at Cheung Chau (2), Au Tau (1), and Tai Po (1). These courses covered pig keeping, poultry keeping, fruit growing, and pond fish culture. The discussions, held at the end of each course to review the problems and the means to overcome them, was most beneficial both to farmers and staff.

172. *Lectures to Co-operative Societies.* Ten lectures, on pig keeping and poultry keeping, were given to co-operative societies in the Sai Kung, Hung Shui Kiu, Tai Po, Tsuen Wan, and Sha Tin areas. Co-operative Society members stated that these lectures were very interesting and of great practical value.

173. *Pig Keeping Course for Po Lo Che Resettlers.* A pig keeping course was specially held for settlers, assisted by the Lutheran Church, at Po Lo Che, Sai Kung. Twenty four persons attended this course.

Radio Broadcasting

174. *The 'Farmers' Week' Programme.* For the last four years this programme has been regularly broadcast, in Cantonese, over Radio Hong Kong; and has established itself as an important and popular item with the rural community of the New Territories. The programmes provided opportunity for discussion of farming topics of everyday importance, and every opportunity was taken to include farmers in broadcasts, recorded in the field. A list of topics discussed during the past year is given in Appendix 15. During this programme items of news and interest were also relayed; as well as information on current

market trends and prices; weekly farm-work reminders were issued and farmers' letters and questions answered.

175. On the 9th October, 1960, Radio Hong Kong initiated a biweekly series of 15-minute programme, condensing main topics from previous 'Farmers' Week' programmes, in Hakka dialect. This programme meets a real need of an important section of the farming community and preference was given to the subjects particularly appropriate to Hakka areas.

176. *The 'Happy Farmer'* Programme. The Department was only indirectly concerned with this programme, which is principally a Cantonese entertainment programme devised by Radio Hong Kong, and acted only in an advisory capacity. Programmes, broadcast weekly, included folk songs, Chinese opera, contemporary Chinese songs, and story-telling. A farming quiz, in which local villagers participated, was incorporated in each programme. At the beginning of the year, this series was temporarily replaced by six 'Happy Fisherman' programmes, followed by eight departmentally inspired documentaries. A new series of 'Happy Farmer' programmes was started later in the year.

Film Shows for Farmers

177. 19,872 people saw films, at 115 showings, in various centres throughout the New Territories. A list of the departmental films from which showings were made is given in Appendix 16. The scope of these programmes was broadened by the inclusion of selected films provided from other sources.

Visits to Stations and Departmental Projects

178. There were a number of visits to departmental stations and projects by students, conducted parties and the staff of other Government departments. Local farmers also regularly visited stations, both individually and in parties. To encourage farmers in remoter areas, visits to the Agricultural Show were arranged for parties of selected farmers from Tung Chung, Sai Kung District and Chek Keng. A list of overseas visitors, to the Department, is given in Appendix 20.

The Agricultural Show

179. The annual Agricultural Show was held at Yuen Long Public School on the 4th and the 5th February, 1961. His Excellency the Governor, Sir Robert Black, K.C.M.G., O.B.E., graciously opened the Show and preview on the 3rd and, accompanied by Lady Black, Sir Roderick W. McLeod, K.C.B., C.B.E., Commander, British Forces, and

Lady McLeod, toured the exhibits and met exhibitors. Lady McLeod, accompanied by the Commander, British Forces, presented prizes and certificates to successful exhibitors in the afternoon of the second day. Considerable effort and work was put into the Show, and with great effect, by exhibitors, commercial concerns and officers of several Government departments. The entries continued to maintain the high standard of previous years and, in many cases, showed further improvement. There was a marked improvement in the scale and scope of entertainment. Publicity for the Show was highlighted by a poster produced by a nine years old schoolchild in a territory-wide competition.

'Tree Planting Festival'

180. From April to June this year, sixty four schools participated in an extended Annual Tree Planting Festival; approximately 6,000 trees were planted. Already the results of previous tree planting festivals are becoming noteworthy and providing a most realistic demonstration of the benefits accruing from afforestation. A poster competition was organized, in conjunction with this festival, for all schoolchildren in the Colony and 176 entries were received. Winners were awarded suitable prizes.

LAND UTILIZATION AND SOIL SURVEY

181. Since the first 'Land Utilization Survey', 1955, there has been a gradual change in land use, over the years. A survey of agricultural land, within main farming areas, was undertaken during the year and confirmed the following major trends: a steady conversion of farming land to urban use, particularly for constructional purposes; and, within farming, the conversion of first-class paddy land to market garden cropping. It was not possible to carry out detailed surveys of the less accessible areas of the territory, but observations by extension staff indicated that relatively little change has occurred in many of these areas; some allowance has been made for minor changes and trends.

182. Agricultural land usage in the territory is recorded in Appendix 18. Points of interest are:

(i) A total of 33,941 acres of cultivable land, a gain of 715 acres on the previous year.

(ii) The increase in cropping area includes some 290 acres of previously abandoned land now brought back to cultivation and 425 acres of newly opened marginal land.

(iii) A continued reduction in the area under paddy, by 1,732 acres approximately.

(iv) An increase in the area under market garden crops, particularly vegetables, by 1,742 acres.
(v) An increase in the field crop acreage, by 879 acres.
(vi) An increase in orchards, by 116 acres.
(vii) An increase in the afforested area, by 1,378 acres, to a total area of 13,378 acres.
(viii) A marked increase in the area under pond fish farming, by some 200 acres.

183. The detailed survey of departmental stations continued during the year, and plans were prepared.

Laboratory Service

184. The field and laboratory work necessary to implement the soil survey of departmental experimental stations and demonstration areas continued. Soils were examined physically and chemically; drainage, texture, PH value, organic matter, total nitrogen, available phosphorus, calcium and magnesium were included in examinations made. 452 soil samples were analysed. Sixty samples of feeding stuffs were analysed to supply information and data for the Animal Industry Division.

PART 7

CONFERENCES AND COMMITTEES

185. The Assistant Agricultural Officer, Mr. C. T. WONG, attended the Fifth F.A.O. Development Centre on Farm Management for Asia and Far East, in Manila and Los Banos, Philippines, from the 3rd to the 21st October, 1960. The Agricultural Officer, Mr. R. R. MASON, attended the Fifth Regional Conference for Asia and the Far East, Saigon, held under the auspices of the International Rice Commission, F.A.O.—United Nations, in Bangkok from the 21st to the 30th November, 1960. The Veterinary Officer, Mr. J. M. RIDDELL-SWAN, carried out a series of visits to various centres, while on leave in the United Kingdom, including Edinburgh, London, Reading, Weybridge and Lyndhurst.

186. The Director attended all meetings of the Rural Development Committee. There were twenty four meetings of the Kadoorie Agricultural Aid Loan Fund Committee. The Director, as Chairman and Trustee of the Fund, presided at meetings of the Committee, which includes Messrs. L. and H. KADOORIE; E. H. NICHOLS, Assistant

Director; D. M. Corbett, Senior Veterinary Officer; and T. S. Woo, Senior Credit Officer. The aforementioned continued to be members of the Kadoorie Agricultural Aid Association, the meetings of which were held in conjunction with those of the Loan Fund Committee. The Wild Life Conservation Advisory Committee, of which the Director is Chairman and the Assistant Director and Senior Veterinary Officer both members, met twice.

PART 8

STAFF

187. Mr. W. J. Blackie, Director, departed on vacation leave prior to retirement on the 16th June, 1960. Mr. P. C. Chambers, C.B.E., Director-designate on transfer from Nigeria, arrived to take up his duties on the 29th October, 1960. Mr. E. H. Nichols, Assistant Director, acted as Director and Mr. D. M. Corbett, Senior Veterinary Officer, acted as Assistant Director from the 16th June, 1960 to the 29th October, 1960. Mr. R. R. Mason, on transfer from the British Solomon Island Protectorate, arrived on the 1st May, 1960 to assume duty as Agricultural Officer. Mr. J. M. Riddell-Swan, Veterinary Officer, returned from vacation leave on the 25th November, 1960.

188. Mr. W. J. Silvey, Senior Livestock Supervisor, proceeded on vacation leave and Mr. Chum Chung-chuan, Agricultural Supervisor Class II, acted as Senior Livestock Supervisor from the 2nd July, 1960 to the end of the year. Mr. Shen Dze-chia, Assistant Forestry Officer, proceeded on a Commonwealth Award, to study forestry research methods and techniques in Australia, on the 17th April, 1960 to the end of the year.

189. During the year in-service training courses and seminars continued to provide serving officers with information and data to keep them abreast of current developments in the particular scientific disciplines with which they were concerned. Training was carried out at several levels providing for assistant professional, senior technical and junior technical requirements.

PART 9

ACKNOWLEDGMENTS

190. It is with considerable pleasure that the following acknowledgments are made: to His Excellency the Governor and Lady Black for

graciously opening the Agricultural Show; to Lady McLeod and Sir Roderick McLeod for presenting prizes and for their interest in the Agricultural Show; to those members of the public, the Services and other Government departments who served on the Agricultural Show Committee and otherwise assisted in preparations and entertainment; to the schoolchildren and members of the public who co-operated in making the annual 'Tree Planting Festival' a most successful event; to many firms for the valuable exchange of information on agricultural and livestock products; to Messrs. Lawrence and Horace Kadoorie for their continued and ever practical interest in the welfare of the people of the New Territories; to the various Consuls-General, Consuls and Trade Commissioners who made available technical information and statistics from their respective countries.

191. I would like to express my personal appreciation of the co-operation and service of all staff in the Department, whether in the field or in the office, who have worked so hard and effectively in the interests of the primary producer.

P. C. Chambers, C.B.E.,
B.A. (Agric.) (Cantab.),
Dip. Agric. (Cantab.), A.I.C.T.A.,
Director of Agriculture
and Forestry.

August 1961.

APPENDIX 1

METEOROLOGICAL DATA 1960-61

	Temperature			Mean Relative Humidity	Total Rainfall in m.m.		Total Sunshine hours	
	Mean Max.	Mean	Mean Min.		Actual	Mean	Actual	Mean
	°F	°F	°F	%				
April, 1960 ...	75.3	70.8	67.5	82	41.6	136.2	102.0	113.5
May ,, ...	82.3	77.5	74.1	86	245.4	286.1	112.0	155.5
June ,, ...	85.9	81.1	77.6	84	676.6	388.3	142.1	160.5
July ,, ...	90.0	84.0	79.6	79	160.6	386.0	282.4	210.4
August ,, ...	87.8	82.5	78.8	85	544.9	363.3	153.9	201.1
September ,, ...	86.9	81.3	76.9	81	311.0	264.6	184.3	198.1
October ,, ...	81.3	76.7	72.9	71	26.1	111.2	190.3	216.7
November ,, ...	76.0	71.3	67.6	81	138.0	42.5	159.4	185.6
December ,, ...	67.7	62.4	57.5	72	13.3	26.2	190.8	171.5
January, 1961 ...	64.9	59.2	54.7	68	3.9	31.9	162.5	145.2
February ,, ...	63.9	59.8	56.6	80	46.2	44.6	65.3	98.1
March ,, ...	69.6	64.9	61.7	86	51.2	72.6	109.7	95.0
Mean	77.6	72.6	68.8	79	—		—	
Total	—	—	—	—	2,258.8		1,854.7	

MEAN FIGURES (1884-1939; 1947-1950)

	26.7	72.0	68.4	79	2,152.8		1,951.7	

APPENDIX 2

SUMMARY OF PRIMARY PRODUCTION

(NEAREST $1,000)

Item	*Value 1958-59 $*	*Value 1959-60 $*	*Value 1960-61 $*	*Remarks 1960-61*
Paddy	22,271,000	18,548,000	16,392,000	1st Crop $30 per picul. 2nd Crop $40 per picul.
Vegetable	32,634,000	36,989,000	43,481,000	Records of Marketing Organization & estimated value of produce consumed locally.
Fruit	2,000,000	3,136,000	3,036,000	Slightly decrease in production due to typhoon.
Flowers	—	—	1,000,900	
Sweet Potato ...	6,400,000	6,344,000	9,795,000	Increase in production & higher prices.
Misc. Field Crops ...		—	3,668,000	
Export Crops ...	2,041,000	2,811,000	2,908,000	Exported under certificate of origin.
Rice Straw	3,090,000	2,371,000	2,551,000	$5.00 to $6.00 per picul.
Poultry	19,489,000	38,400,000	56,700,000	Estimated on census figures at $7.00 per bird.
Eggs	2,583,000	4,353,000	6,580,000	
Ducks	6,072,000	7,100,000	8,100,000	Estimated on census figures at $9.00 per bird.
Duck Eggs	566,000	445,000	480,000	
Pigeons	336,000	826,000	1,400,000	Estimated on census figures at $7.00 per pair of squabs.
Quail	7,000	9,000	15,000	At $1.00 per bird.
Quail Eggs	67,000	81,000	108,000	Eggs at 60 c. per dozen.
Geese	795,000	910,000	1,080,000	On census figures at $12.00 each.
Goose Eggs	69,000	146,000	480,000	
Pigs	40,886,000	36,303,000	39,340,000	At $206.00 per picul and 65 catties average weight.
Cattle	2,376,000	1,558,000	2,375,000	At $2.00 per catty average weight 240 catties.
Fresh Milk	10,822,000	12,450,000	12,596,000	
Misc. Animal Products	7,401,000	22,846,000	16,130,000	
Pond Fish	1,450,000	2,400,000	3,000,000	Improved production and higher prices.
Forest Products ...	423,000	41,000	97,000	Increase in production.
Total	$161,778,000	$198,067,000	$231,312,000	

ESTIMATED YIELD, VALUE AND CULTIVATED AREA OF PADDY IN THE COLONY, 1960

Circle	Areas included	2-Crop Paddy					1-Crop Paddy (Upland Paddy)			1-Crop Paddy (Brackish Water Paddy)			Total		
		Area in Acres	1st Crop		2nd Crop		Area in Acres	Yield in piculs	Value in $ @ $27 per picul	Area in Acres	Yield in piculs	Value in $ @ $38 per picul	Production piculs	Value $	Area in Acres
			Yield in piculs	Value in $ @ $30 per picul	Yield in piculs	Value in $ @ $40 per picul									
West	Castle Peak ...	1,544.48	14,178	425,340	23,167	926,680	—	—	—	20.00	180	6,840	37,525	1,358,860	1,564.48
	Ping Shan ...	1,197.74	3,773	113,190	17,247	689,880	—	—	—	1,256.88	11,312	429,856	32,332	1,232,926	2,454.62
	Yuen Long ...	1,917.60	20,712	621,360	28,764	1,150,560	—	—	—	81.44	733	27,854	50,209	1,799,774	1,999.04
North West	Kam Tin ...	2,212.76	22,697	680,910	34,519	1,380,760	—	—	—	121.68	1,095	41,610	58,311	2,103,280	2,334.44
	San Tin ...	1,303.27	12,668	380,040	17,985	719,400	—	—	—	1,187.68	10,689	406,182	41,342	1,505,622	2,490.95
North East	Sha Tau Kok...	1,021.99	13,490	404,700	13,490	539,600	70.00	504	13,608	125.27	1,127	42,826	28,611	1,000,734	1,217.26
	Fanling ...	782.96	6,761	202,830	11,275	451,000	—	—	—	—	—	—	18,036	653,830	782.96
	Ta Kwu Ling...	2,012.88	9,250	277,500	24,155	966,200	90.00	648	17,496	—	—	—	34,053	1,261,196	2,102.88
	Sheung Shui ...	1,086.09	9,385	281,550	16,291	651,640	—	—	—	75.00	675	25,650	26,351	958,840	1,161.09
Tolo Harbour	Tai Po ...	1,572.34	16,135	484,050	23,585	943,400	12.00	86	2,322	—	—	—	39,806	1,429,772	1,584.34
	Sai Kung N. ..	576.12	5,531	165,930	6,913	276,520	5.00	36	972	—	—	—	12,480	443,422	581.12
	Sha Tin ...	712.39	9,404	282,120	10,686	427,440	—	—	—	10.00	90	3,420	20,180	712,980	722.39
South East	Sai Kung S. & Hang Hau ...	1,038.07	9,343	280,290	12,457	498,280	—	—	—	20.00	180	6,840	21,980	785,410	1,058.07
South	Tsuen Wan ...	288.89	2,362	70,860	3,813	152,520	—	—	—	2.00	18	684	6,193	224,064	290.89
East Lantau	East Lantau ...	638.50	6,130	183,900	7,662	306,480	—	—	—	—	—	—	13,792	490,380	638.50
	Lamma ...	81.72	755	22,650	981	39,240	—	—	—	—	—	—	1,736	61,890	81.72
West Lantau	West Lantau...	489.94	4,409	132,270	5,879	235,160	—	—	—	5.00	45	1,710	10,333	369,140	494.94
	Total ...	18,477.74	166,983	$5,009,490	258,869	$10,354,760	177.00	1,724	$34,398	2,904.95	26,144	$993,472	453,270 or 27,414 Metric tons	$16,392,120	21,559.69

1 picul = 133 lbs.

APPENDIX 4

QUANTITY AND VALUE OF VEGETABLES PRODUCED IN THE COLONY AND SOLD THROUGH VEGETABLE MARKET

1959-60 v.s. 1960-61

	1959-60		1960-61	
	Yield in Catties	Value in $	Yield in Catties	Value in $
Cabbage, Flowering	18,657,723¾	4,748,066.80	19,146,467	5,689,441.37
Cabbage, White	36,322,840¼	5,191,546.90	30,555,835½	5,955,949.03
Cabbage, Leaf Mustard ...	11,644,557¼	1,729,593.12	11,745,863¾	2,094,361.28
Kale, Chinese	9,080,461	2,128,543.32	9,084,155½	2,625,352.36
Sweet Potato	2,157,362	339,234.76	2,538,995	440,255.22
Tomato...	5,809,531¾	784,361.68	3,024,045¾	709,489.12
Water Cress	5,248,129½	1,305,447.86	4,848,602	1,618,114.64
Onion, Spring	3,521,133¼	863,482.33	3,624,687¼	1,070,274.80
Turnip	4,408,529	758,090.67	6,931,970¾	1,086,111.10
Lettuce, Chinese	7,772,677¾	883,399.60	8,139,298½	1,111,641.59
Spinach, Chinese	1,953,881¾	389,778.14	1,603,808¼	288,434.90
Spinach...	2,617,965¼	640,388.18	5,381,172¾	1,137,349.30
Spinach, Water	6,257,997	1,150,191.94	6,945,392½	989,638.48
Chinese Chives	1,907,510	445,850.27	1,922,098¼	593,734.97
Brinjal	2,123,262½	430,757.94	1,080,612	275,546.80
Cucumber	2,729,412¾	503,755.03	3,449,427½	645,794.98
Bean, String	5,027,166	2,338,655.91	5,028,094¾	2,928,486.44
Yam Bean	529,232½	136,050.79	167,005	47,778.34
Taro	432,445	184,171.53	485,196¾	174,881.25
Miscellaneous	28,613,147	8,338,625.20	24,846,766½	8,996,454.80
Total	156,895,965¼ or 94,915.89 Metric tons	33,289,991.97	150,549,495¼ or 91,052.33 Metric tons	38,479,090.77

1 catty = 1.33 lbs.

APPENDIX 5

VEGETABLES GROWN IN THE NEW TERRITORIES, 1959-60 AND 1960-61

(Production by District)

	Districts	1959-60 (piculs)	1960-61 (piculs)
1.	Kowloon	72,622.22½	49,465.85½
2.	Sha Tin	4,128.39	4,339.95½
3.	Tai Po	109,574.55¾	99,994.36
4.	Fanling	420,374.07¼	360,364.17
5.	Sheung Shui	302,241.71½	290,667.61¼
6.	San Tin	98,220.17¾	90,810.74¾
7.	Yuen Long	127,603.70	125,185.05¾
8.	Kam Tin	171,332.05¾	203,832.93¼
9.	Castle Peak	223,636.98¾	244,726.74¼
10.	Tsuen Wan	39,185.87	36,107.52
	Total	1,568,959.65¼	1,505,494.95¼

1 picul = 133 lb.

APPENDIX 6

FRUIT PRODUCTION (1960-61)

Name of Fruit Trees	No. of Plants	Quantity of Fruits (Catties)	Value of Fruit $
Sweet Orange	5,500	82,500	148,500.00
Tangerine...	23,000	414,000	282,000.00
Foreign Lemon	200	5,000	2,000.00
Local Lime	17,000	510,000	408,000.00
Pumelo	2,200	88,000	35,200.00
Mandarin (Mostly in pots)	1,800	9,000	27,000.00
Kumquat (Mostly in pots)	1,200	1,500	1,800.00
Wampei	8,500	25,000	127,500.00
Litchi	19,200	288,000	432,000.00
Longan	4,800	96,000	172,800.00
Papaya	14,000	140,000	70,000.00
Guava	20,000	300,000	90,000.00
Banana	5,000	150,000	37,500.00
Chinese Olive	5,700	228,000	228,000.00
Carambola	1,300	13,000	3,900.00
Mango	850	42,500	17,000.00
Yamin	400	60,000	60,000.00
Plum	400	16,000	3,200.00
Persimmon	400	14,000	4,200.00
Sand Pear	150	4,500	1,125.00
Japanese Apricot	9,000	180,000	117,000.00
Peaches (Edible)	7,000	350,000	122,500.00
Pineapple...	140,000	210,000	84,000.00
Miscellaneous	14,000	21,000	8,400.00
Total	303,300	3,314,800	3,036,425.00

1 catty = 1.33 lbs.

EXPORT CROPS

No.	Crop	1959-60			1960-61		
		Quantity (piculs)	Unit Price $	Amount $	Quantity (piculs)	Unit Price $	Amount $
1.	Vegetable Seeds	189.43	500.00	94,715.00	708.76	500.00	354,380.00
2.	White Cucumber	782.00	14.62	11,435.52	2,122.60	20.29	43,063.30
3.	Bitter Cucumber	81.35	66.30	5,393.76	61.30	100.00	6,130.00
4.	Mushroom	10.70	577.07	6,174.75	1.26	750.00	945.00
5.	Taro	979.54	41.22	40,375.80	784.42	48.05	37,685.75
6.	Ginger	3,030.91	45.62	138,293.55	3,353.07	75.47	253,044.87
7.	Lotus Root	581.80	56.79	33,046.00	870.68	62.39	54,319.10
8.	Lotus Seeds...	6,298.00 (fruits)	.42	2,638.80	12,685.00 (fruits)	.40	5,074.00
9.	Yam	450.48	40.00	18,019.20	489.18	42.45	20,767.30
10.	White Cabbage	3,172.10	17.51	55,536.60	3,654.47	19.41	70,928.90
11.	Radish	715.49	29.79	21,318.65	1,217.55	25.12	30,581.35
12.	Turnip	3,196.49	29.88	95,516.56	3,740.12	34.06	127,385.61
13.	Mustard	1,322.33	8.55	11,306.03	2,015.44	17.06	34,383.01
14.	Waterchestnut	35,163.43	45.57	1,602,616.65	30,923.08	54.64	1,689,587.70
15.	Arrowhead	866.49	150.72	130,601.10	659.87	135.95	89,708.50
16.	Lemon	563.96	65.77	37,094.21	460.96	88.15	40,634.63
17.	Wampei	229.00	62.61	14,337.50	90.00	50.00	4,500.00
18.	Japanese Apricot	341.85	60.00	20,511.00	448.26	86.61	40,318.92
19.	Olive, Black	52.16	38.00	1,982.00	69.29	60.00	4,157.40
	Total			2,811,979.58			2,907,590.34

1 picul = 133 lbs.

APPENDIX 8

FERTILIZER TRIALS ON TYPICAL RICE SOILS

SERIES A

A series of trials, testing four levels of N, P and K, at six localities (four soil types) was started in the second crop season, 1958. Experimental design was a 4 × 4 Latin square.

Treatments were as follows:

(i) Nitrogen: Levels of nil, 30 lb., 60. lb. and 90 lb. N per acre were applied in the form of Ammonium Sulphate. Plots received standard dressing of 30 lb. P_2O_5 (Superphosphate) and 30 lb. K_2O (Muriate of Potash) per acre.

(ii) Phosphorus: Levels of nil, 30 lb., 60 lb. and 90 lb. P_2O_5 per acre were applied as Superphosphate. Plots received standard dressings of 30 lb. N (Ammonium Sulphate) and 30 lb. K_2O (Muriate of Potash) per acre.

(iii) Potassium: Levels of nil, 30 lb., 60 lb. and 90 lb. K_2O per acre in the form of Muriate of Potash were applied. Plots received standard dressing of 30 lb. N (Ammonium Sulphate) and 30 lb. P_2O_5 (Superphosphate) per acre.

N.B. Except for the trial at Cha Hang, this series was discontinued after the first crop season, 1960.

Results were as follows:

Site (*a*): *Northwest Circle—Tai Hong Wai*

Soil Type—Chek Nai Ping (poorly drained).

First Crop:— Nitrogen– Highly significant response at 30 lb. nitrogen per acre and significant response at 60 lb. nitrogen per acre.

Phosphorus and Potassium—Differences were not significant.

Site (*b*): *Tolo Harbour Circle—Cha Hang*

Soil Type—Chek Nai Ping (very poorly drained).

First Crop:— Nitrogen—Significant response at 60 lb. nitrogen per acre and highly significant response at 90 lb. per acre.

Phosphorus and Potassium—Differences were not significant.

Second Crop:— Nitrogen, Phosphorus and Potassium—No significant response recorded.

Site (*c*): *Northwest Circle—Mai Po*

Soil Type—Mai Po (poorly drained).

First Crop:— Nitrogen, Phosphorus and Potassium—No significant response recorded.

Site (*d*): *Northeast Circle—Sheung Shui Wai*

Soil Type—Mai Po (poorly drained).

First Crop:— Crop failed due to flooding on 19.5.60 and typhoon damage on 9.6.60.

Site (*e*): *Tolo Harbour Circle—Ping Long*

Soil Type—Lam Tsuen (imperfectly drained).

First Crop:— Nitrogen and Phosphorus—No significant response recorded.

Potassium—Highly significant negative response at 60 lb. nitrogen per acre.

SERIES A—Contd.

Site (*f*): *West Circle—Shun Fung Wai*

Soil Type—Sun Hing (poorly drained).

First Crop:— Nitrogen—Significant response at 60 lb. nitrogen per acre and highly significant response at 90 lb. nitrogen per acre.

Phosphorus and Potassium—Differences were not significant.

SERIES B

A second series of trials testing N, P and K at 10 localities (three soil types), was started in the first crop season, 1959. Experimental design was that of four randomized blocks each containing six plots.

Treatments were as follows:

Control (no fertilizer).

Nitrogen at two levels, 30 lb. and 60 lb. per acre.

N and P_2O_5 both at 30 lb. per acre.

N and K_2O both at 30 lb. per acre.

N, P_2O_5 and K_2O all at 30 lb. per acre.

The fertilizers used were Ammonium Sulphate, Superphosphate and Muriate of Potash.

Results were as follows:

Site (*a*): *Southwest Circle—Tai Wai*

Soil Type—Sha Tin (poorly drained).

First Crop:— Highly significant response to all treatments. N P K was significantly superior to nitrogen at 30 lb. per acre.

Second Crop:— No significant response to any treatment.

Site (*b*): *Tolo Harbour Circle—Tai Om*

Soil Type—Lam Tsuen (imperfectly drained).

First Crop:— Significant negative response to nitrogen at 30 lb. per acre and nitrogen plus phosphorus; and highly significant negative response to nitrogen at 60 lb. per acre, nitrogen plus potassium and N P K.

Second Crop:— Highly significant negative response at 60 lb. nitrogen per acre and no significant response to other treatments.

Site (*c*): *Tolo Harbour Circle—Shun Wan*

Soil Type—San Hing (very poorly drained).

First Crop:— Highly significant response to all treatments.

Differences between the treatment yields were not significant.

Second Crop:— No significant response to any treatment.

APPENDIX 8—*Contd.*

SERIES B—Contd.

Site (*d*): *Northeast Circle—Wo Hang*

Soil Type—Sek Kong (poorly drained).

First Crop:— Highly significant response to nitrogen plus potassium and N P K

Second Crop:— Significant response to nitrogen at 30 lb. per acre and N P K; and highly significant response to nitrogen plus phosphorus, and nitrogen plus potassium.

Site (*e*): *Northeast Circle—Chung Pak Long*

Soil Type—Chek Nai Ping (poorly drained).

First Crop:— Crop failed due to flood damage.

Second Crop:— No significant response to any treatment.

Site (*f*): *Northwest Circle—Wang Toi Shan*

Soil Type—Sek Kong (poorly drained).

First Crop:— Highly significant response to nitrogen plus potassium and N P K. The difference between these two treatments was not significant.

Second Crop:— Highly significant response to nitrogen plus phosphorus and N P K. The difference between the two treatments was not significant.

Site (*g*): *West Circle—Ha Tsuen*

Soil Type—Chek Nai Ping (poorly drained).

First Crop:— Highly significant response to all treatments.
Differences between the treatment yields were not significant.

Second Crop:— No significant response to any treatment.

Site (*h*): *West Circle—Shun Fung Wai*

Soil Type—San Hing Soil (poorly drained).

First Crop:— No significant response to any treatment.

Second Crop:— Significant response to nitrogen plus phosphorus and nitrogen plus potassium; and highly significant response to N P K.

Site (*i*): *Southeast Circle—Sha Kok Mei*

Soil Type—Sha Tin (imperfectly drained).

First Crop:— Significant response to nitrogen at 30 lb. per acre; and no significant response to other treatments.

Second Crop:— Highly significant response to all treatments.
Differences between the treatments were not significant.

Site (*j*): *West Lantau Circle—Tung Chung*

Soil Type—Sek Kong (poorly drained).

First Crop: Significant response to nitrogen plus potassium and N P K; and significant negative response to nitrogen at 60 lb. per acre.

Second Crop:— Experimental errors high; results discarded.

APPENDIX 9

ABATTOIR STATISTICS

ANIMALS ADMITTED FOR SLAUGHTER 1960-61

(*a*) *Imported Animals Admitted for Slaughter*

Source	*Swine*	*Cattle*	*Sheep*	*Goats*
Mainland China	613,798	54,561	—	11,659
Cambodia	64,805	12,054	—	—
Thailand	33,162	49,325	—	542
Taiwan	75,765	—	—	—
Australia	—	6,094	—	—
Okinawa	349	—	—	—
Vietnam	112,494	358	—	593
Macau	70	—	—	—
Indonesia	—	2,633	—	—
South Korea	29,183	—	—	—
Total	929,626	125,025	—	12,794

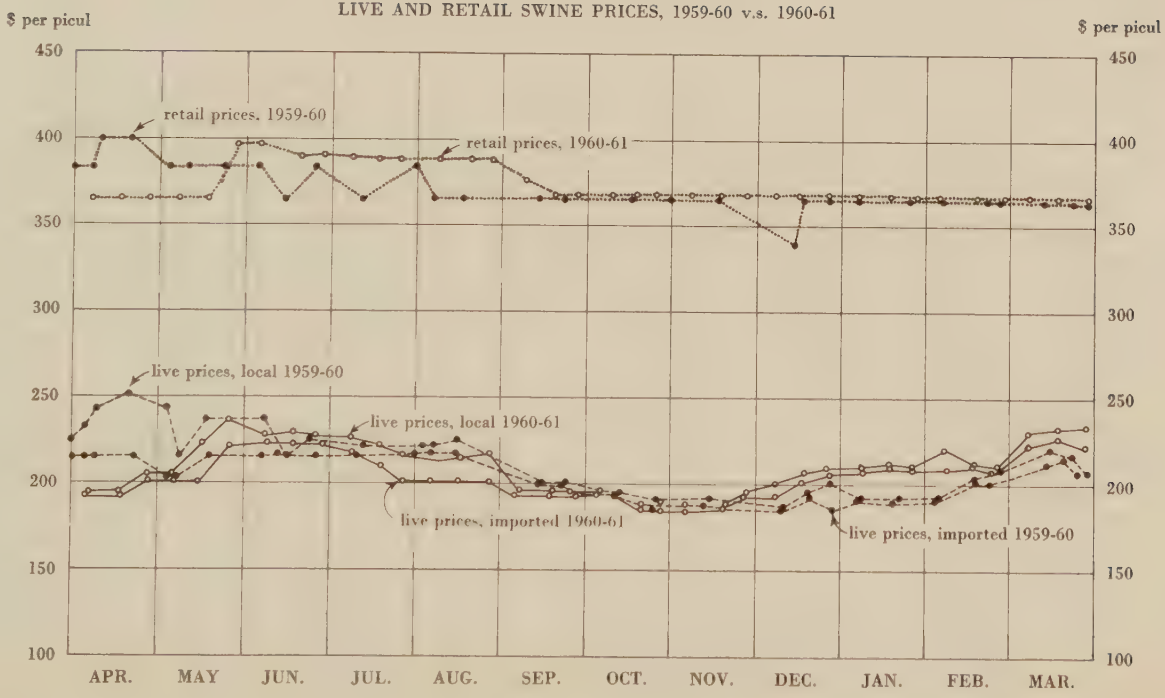
(*b*) *Local Animals Admitted for Slaughter*

Animal Depots	*Swine*	*Cattle*	*Sheep*	*Goats*
Urban	161,447	1,164	—	212
New Territories	132,359	3,784	—	—
Total	293,806	4,948	—	212

(*c*) *Imported and Local Animals Admitted for Slaughter*

	Swine	*Cattle*	*Sheep*	*Goats*
Grand Total	1,223,432	129,973	—	13,006

LIVE AND RETAIL SWINE PRICES, 1959-60 v.s. 1960-61



APPENDIX 11

STATISTICS OF ANIMALS, BIRDS, REPTILES, FISH, ANIMAL PRODUCTS AND STEEL DRUMS INSPECTED AND CERTIFIED FOR THE YEAR OF 1960-61

Animals	*No.*
Dogs	187
Cats	8
Monkeys	9,600
Gibbons	40
Elephants	8
Tigers	3
Leopard	1
Bear	1
Lion	1
Orang-Utans	13
Chimpanzees	4
Squirrels	2
Ferret-Badger	1
Mongoose	2
Lemur	1
Marmosets	9
	9,881
Birds	
Cage Birds	217,239
Pheasants	5
Peacocks	2
Pigeons	151
Silky Chickens	7
	217,404
Reptiles	
Crocodiles	2
Lizards	43
Pythons	42
Turtles	656
	743
Goldfish	3,528
Tropical-fish	14,914
Steel Drums	9,900

APPENDIX 11—*Contd.*

Description of Commodity	Weight in lb.	Average Price/lb. $	Total Value $
Alligator Skin	303	20.00	6,060.00
Beet Pulp	1,100,000	.10	110,000.00
Bear Bile	56.6	800.00	45,280.00
Bone Meal	2,057,012	.14	287,981.68
Bristle	6,260	7.50	46,950.00
Cattle Bone	893,632	.14	125,108.48
Cattle Hides	1,917,117	1.50	2,875,675.50
Cattle Horn & Hoof	3,835,481	.27	1,035,579.87
Civet Cat Hair	732	25.00	18,300.00
Deer Horn	3,365	170.00	572,050.00
Deer Skin	106,973	2.50	267,432.50
Donkey Hides	9,173	1.40	12,842.20
Feathers	913,546	6.00	5,481,276.00
Gall Stone	621	960.00	596,160.00
Goat Hair	27,512	4.00	110,048.00
Hide Cuttings	2,114,322	.34	718,869.48
Horse Tail Hair	22,133	4.40	97,385.20
Human Hair	72,474	4.00	289,896.00
Lard	8,847	1.20	10,616.40
Lizard Skin	638	20.00	12,760.00
Maize	920,370	.20	184,074.00
Misc. Animal Hair	9,351	12.00	112,212.00
Misc. Animal Hides	15,058	2.50	60,370.00
Misc. Dry Sea Food	5,768	12.00	69,216.00
Misc. Frozen Meat	28,781	2.00	57,562.00
Musk Pods	27.9	7,500.00	209,250.00
Pen Wool	5,250	18.00	94,500.00
Preserved Meat	12,171	8.00	97,368.00
Rabbit Hair	48,463	16.00	775,408.00
Raccoon Hair	300	21.00	6,300.00
Raw Wool	100,925	5.00	504,625.00
Saiga Deer Horn	88	3,800.00	334,400.00
Seal's Glands	44	180.00	7,920.00
Sheep & Goat Casings	10,669	30.00	320,070.00
Silk Waste	121,046	4.60	556,811.60
Snake Skin	22	40.00	880.00
Yak Tail Hair	2,950	5.20	18,940.00

Total weight: 14,371,481.5 lbs.; total value: $16,130,177.91; yielding a revenue of $18,982.50.

RABIES CONTROL STATISTICS

A. Dog Inoculation and Licensing

	Hong Kong	Kowloon	N.T.	Total
Inoculated and licensed ...	2,404	2,100	5,534	10,038
Licensed only	1,968	1,287	2,659	5,914
Total	4,372	3,387	8,193	15,952

B. Observation and Stray Animals

(Admissions and Disposals in the four Government Kennels)

Observation	Dogs	Cats	Monkeys	Pigs
Remaining in Kennels on 31st March, 1960	28	2	—	—
Admitted during the year ...	2,383	72	10	9
Returned to owners	1,824	46	10	8
Destroyed	533	27	—	—
Died in Kennels	16	1	—	1
Adopted by new owners ...	5	—	—	—
Remaining in Kennels on 31st March, 1961	33	—	—	—
Stray				
Remaining in Kennels on 31st March, 1960	7	—	—	—
Admitted during the year ...	947	15,516	2	—
Returned to owners	451	—	2	—
Destroyed	424	15,516	—	—
Died in Kennels	3	—	—	—
Adopted by new owners ...	69	—	—	—
Remaining in Kennels on 31st March, 1961	7	—	—	—

C. Dog Control Unit

	Total Stray Dogs Found	Found Licensed & Returned to Owners	Unlicensed & Returned to Owners after Licensing	Unclaimed & Destroyed
1st Quarter	198	117	42	39
2nd „	468	276	99	89
3rd „	472	328	79	69
4th „	523	301	127	95
Total	1,661	1,022	347	292

IMPORTS AND RE-EXPORTS OF TIMBER AND FUEL FOR THE YEAR ENDED 31ST DECEMBER, 1960

	Category	Gross Import		Gross Export		Net Import		Percentage by value of gross imports or exports from or to different sources or destinations	
		Hundred of Cu. ft.	Value $	Hundred of Cu. ft.	Value $	Hundred of Cu. ft.	Value $	Imports	Exports
	TIMBER								
	(A) *Round:*								
1.	Teak	1,822.19	2,335,669			1,822.19	2,335,669	North Borneo 44%	U.S.A. ... 42%
2.	Primary Hardwood	2,839.78	1,764,845			2,839.78	1,764,845	Sarawak 19%	United Kingdom ... 29%
3.	Secondary Hardwood	19,271.42	6,616,474	—	—	19,271.42	6,616,474	Thailand 10%	Australia ... 19%
4.	Light Hardwood	119,129.12	33,887,967	—	—	119,129.12	33,887,967	Burma 10%	Denmark ... 2%
5.	Soft Wood	2,227.08	1,328,116	—	—	2,227.08	1,328,116	China 4%	Other destinations ... 8%
6.	Timber for match-making	—	—	—	—	—	—	Canada 1%	
7.	Poles, Pilings & Posts	674.36	198,380	—	—	674.36	198,380	Formosa 1%	
8.	Decorative Wood	747.30	860,620	—	—	747.30	860,620	Australia 1%	
9.	Sandal Wood (cwt.)	* 55.28	1,417,109	—	—	* 55.28	1,417,109	Other Sources 10%	
10.	Non-conifer longs	67.55	50,654	—	—	67.55	50,654		
11.	Railway Sleepers (no.)	* 3,769	158,129	—	—	* 3,769	158,129		
	(B) *Sawn:*								
12.	Teak	7,578.93	11,318,783	91.21	331,914	784.72	11,006,869		
13.	Primary Hardwood	330.91	275,442	—	—	330.91	275,442		
14.	Secondary Hardwood	6.80	7,277	501.50	427,671	—	—		
15.	Light Hardwood	5,761.71	2,113,211	4,788.01	5,185,194	973.60	†		
16.	Softwood	8,420.03	3,584,288	—	—	8,420.03	3,584,288		
17.	Decorative Wood	179.24	341,691	12.53	27,679	166.71	314,012		
	Total	169,056.42	66,258,655	5,393.25	5,952,458	157,368.33	63,798,574		
	FUEL	Cwt.	Value $	Cwt.	Value $	Cwt.	Value $		
	(A) Firewood	2,137,537	7,501,385	151,770	395,182	1,985,767	7,106,203	Brunei ... 30% North Borneo 29% Malaya ... 13% China ... ... 18% N. Vietnam... 2% Other Sources 8%	Macau... ...100%
	(B) Charcoal	1,130,085	12,761,023	—	—	1,130,085	12,761,023	Malaya ... 91% Thailand ... 1% China ... ... 4% Other Sources 4%	-
	Total Fuel	3,267,622	20,263,408	151,770	395,182	3,115,852	19,867,226		

Note: * Figure not included in total. † Figure for value not available.

KADOORIE AGRICULTURAL AID LOAN FUND

STATEMENT OF ACCOUNTS FOR THE PERIOD FROM 1ST JANUARY, 1960 TO 31ST MARCH, 1961

INCOME AND EXPENDITURE ACCOUNT

EXPENDITURE		INCOME	
To Bad Debts Account	$ 432.40	By Interest on Fixed Deposits Accounts	$12,708.27
To Balance transferred to Trust Fund	12,275.87		
	$12,708.27		$12,708.27

BALANCE SHEET AS AT 31ST MARCH, 1961

LIABILITIES			ASSETS		
Trust Fund:			Cash and Bank Balances:		
Donated jointly by Mr. H. KADOORIE, O.B.E., Chev. Leg. Hon. and Mr. L. KADOORIE, Chev. Leg. Hon. ...	$ 250,000.00		The Hongkong and Shanghai Banking Corporation, Kowloon Agency:		
Donated by Hong Kong Government...	1,500,000.00	$1,750,000.00	Current Account ...	$ 155,637.52	
Transferred from Income and Expenditure Account:			Fixed Deposit Accounts	450,000.00	
Balance at 1.1.60	$ 13,447.55		Cash in hand* ...	4,035.00	$ 609,672.52
Add Surplus for the year 1960-61 ...	12,275.87		Loans Outstanding:		
Balance at 31.3.61		25,723.42	Balance brought down...	$ 858,197.20	
			Add loans issued for the year 1960-61	1,294,414.40	$2,152,611.60
			Less Repayments for the year 1960-61...		986,128.30
					1,166,483.30
			Less Bad Debts written off		432.40
			Balance outstanding as at 31.3.61		1,166,050.90
		$1,775,723.42			$1,775,723.42

Note: * Cash in various Stations:

Headquarters	$ 780.00
Au Tau...	1,580.00
Sai Kung...	1,000.00
Ko Po	675.00
	$4,035.00

In accordance with the provisions of the Kadoorie Agricultural Aid Loan Fund Ordinance, 1955 (No. 25 of 1955) as amended by the Kadoorie Agricultural Aid Loan Fund (Amendment) Ordinance, 1960 (No. 40 of 1960), the cost of administering the Fund has been defrayed out of the general revenue of the Colony and no interest has been charged on any loan made; and the Trustee shall have power subject to the direction of the Committee to write off from the moneys of the Fund any sums which the Committee deem to be irrecoverable; and receive any further donations to the Fund which may from time to time be made either by H. KADOORIE or L. KADOORIE or by the Government.

CERTIFICATE OF THE DIRECTOR OF AUDIT

The above Statement of Accounts has been examined in accordance with Section 11(2) of the Kadoorie Agricultural Aid Loan Fund, 1955 (as amended by Ordinance No. 40/1960). I have obtained all the information and explanations that I have required, and I certify, as a result of this audit, that in my opinion the Statement is correct.

Certified Correct.

P. C. CHAMBERS,
Trustee.
30th May, 1961.

AUDIT DEPARTMENT,
Hong Kong, 12th June, 1961.

W. J. D. COOPER,
Director of Audit.

APPENDIX 15

'FARMERS' WEEK' RADIO BROADCAST PROGRAMME — MAIN TOPICS

April, 1960 :

(*a*) Tree Planting Season.
(*b*) First Crop Paddy—Transplanting, Fertilizers and Weed Control.
(*c*) Poster Competition and World Festival of Trees.
(*d*) How to Rear Chicks.

May, 1960 :

(*a*) Insecticides and Sprayers—How to handle, mix and apply, etc.
(*b*) Summer or Warm Season Vegetables.
(*c*) How to select Breeding sow and porker.
(*d*) The Deep Sea Long Liner.
(*e*) K.A.A.A.—Assistance Facilities for farmers.

June, 1960 :

(*a*) Cultivation of Delayed Transplanted Paddy and Variety for the 2nd Crop.
(*b*) The Litchi and Longan.
(*c*) Cleaning & Disinfection of Poultry Houses and Equipments.
(*d*) Bee Keeping in the New Territories.

July, 1960 :

(*a*) Orchard Maintenance and upkeep—intercropping.
(*b*) The Purse Seiner.
(*c*) Paddy Insects and Their Control measures.
(*d*) Selection of Pig Feed.
(*e*) The Training of Young Farmers.

August, 1960 :

(*a*) Compost Making and Fertilizer Practice.
(*b*) Season Fruits—Chinese Olive, Persimmon and Carombola, etc.—care and maintenance.
(*c*) How to use the Ranik het Disease Vaccine properly.
(*d*) Preparation for Winter Vegetables.

September, 1960 :

(*a*) Insects—Appearance in season and crop.
(*b*) The Importance of Vegetable Industry in the New Territories.
(*c*) The Papaya.
(*d*) Pig Breeding in Hong Kong.

October, 1960:

(*a*) Seasonal variation of Market prices of Chinese Cabbage and Flowering Cabbage.

(*b*) Some Western Vegetables in New Territories.

(*c*) Prevent Hill Fires.

(*d*) Poultry Breeding in Hong Kong.

(*e*) A.F.D. Agricultural Extension Services.

November, 1960:

(*a*) Keep Hong Kong Green.

(*b*) Fertilization of Vegetables.

(*c*) Catch Crop on Paddy Fields.

(*d*) Rabies Inoculation.

December, 1960:

(*a*) Types of Fish Ponds in New Territories.

(*b*) Winter Vegetable as Catch Crop.

(*c*) Discussion on the Classes of Exhibits for the Agricultural Show and other data on collecting centres.

(*d*) Poultry management in Hong Kong.

January, 1961:

(*a*) Carelessness Causes Hill Fires.

(*b*) Final instruction to Exhibitors at the Agricultural Show and invitation

(*c*) Food Nutrition from vegetable.

(*d*) Pig Management in Hong Kong.

(*e*) Treatment of Tree Wounds.

February, 1961:

(*a*) Market Trend on Pigs in Hong Kong.

(*b*) Some Aquatic Vegetable in New Territories.

(*c*) Poultry Feeding in Hong Kong.

(*d*) The Collecting of Grey Mullet Fry.

March, 1961:

(*a*) Management and care of Paddy Nursery.

(*b*) Vegetable seed saving in Hong Kong (Part I).

(*c*) Pig Feeding in Hong Kong.

(*d*) Fertilizer on Fruit Trees.

APPENDIX 16

LIST OF FILMS USED IN AUDIO-VISUAL AID

Title	*Showing Time (Minutes)*	*Type*
A. *Husbandry*		
(i) Paddy Culture in Hong Kong	24	Colour
(ii) How to Increase Rice Production	14	Colour
(iii) Use of Insecticides	16	Colour
(iv) Irrigation and Drainage	20	Colour
B. *Livestock Husbandry*		
(i) Poultry Breeds	10	Black and White
(ii) Examination of Poultry Diseases	10	Colour
(iii) Exotic Pigs in Hong Kong	20	Colour
(iv) Meat and Bone Meal	10	Colour
C. *Forestry*		
(i) Forestry for the Future	32	Colour
(ii) Tree Planting Day, 1958	10	Colour
D. *Departmental Records*		
(i) Agriculture and Forestry Department Activities	32	Black and White
(ii) Agricultural Activities:		
(*a*) 1957	32	Colour
(*b*) 1958	32	Colour
(iii) Forestry Activities	32	Colour
(iv) Veterinary Work	10	Black and White
(v) H.E. the Governor's visits to the Agriculture and Forestry Department:		
(*a*) 1955	15	Colour
(*b*) 1956	24	Colour
(*c*) 1957	12	Colour
(vi) Extension Services on Off-shore Islands	16	Colour
(vii) Au Tau Pond Fish Experimental Station ...	5	Colour
E. *General*		
(i) Hong Kong Agriculture (1956)	32	Colour
(ii) Flood Damage (1957)	10	Colour
(iii) Agricultural Show:		
(*a*) 1955	30	Colour
(*b*) 1956	32	Colour
(*c*) 1957	32	Colour
(*d*) 1958	32	Colour
(*e*) 1959—1	10	Colour
2	30	Colour
3	10	Colour
4	10	Colour
(*f*) 1960	20	Colour
(iv) Dragon Boat Races (1958)	10	Colour

APPENDIX 17

LIST OF PAMPHLETS AND LEAFLETS
AGRICULTURE AND FORESTRY DEPARTMENT

I. *Agricultural Pamphlets:*

(i) Hints on handling Insecticides and Sprayers.

(ii) Preparation and Sowing of the Paddy Seed Nurseries.

(iii) Sowing of Vegetable Seeds.

(iv) Information on Some of the More Effective Insecticides and their Correct Use.

(v) The Handling of Dangerous Insecticides.

(vi) How to Transplant Fruit Trees.

(vii) Control of the Rice Stem Borer.

(viii) Compost Making.

(ix) Management of the Paddy Nursery.

II. (*A*) *Animal Husbandry Pamphlets:*

(i) Cleaning and Disinfecting Poultry Houses and Equipment.

(*B*) *Animal Disease Leaflets:*

(i) Infectious Laryngo-Tracheitis.

(ii) Rinderpest.

(iii) Foot and Mouth Disease.

(iv) Virus Pneumonia of Pigs.

(v) Intestinal Worms of Pigs.

(vi) Prucellosis of Swine.

(vii) Swine Fever.

(viii) Newcastle Disease of Fowls.

III. (*C*) *Forestry Pamphlets:*

(i) Control of the Pine Looper Caterpillar.

(ii) Tree Seed Collection.

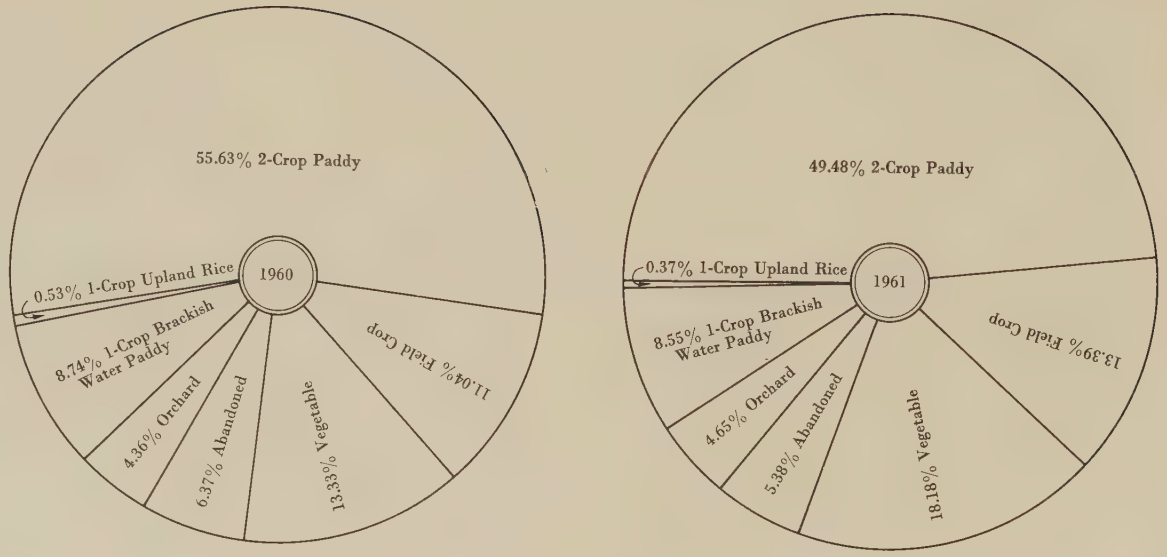
LAND UTILIZATION, 1961

(ACRES)

District	Circle	Areas included	Paddy Land: 2-crop paddy	Paddy Land: 1-crop upland rice land	Paddy Land: 1-crop brackish water paddy land	Vegetable Land	Field Crop Land	Orchard	Abandoned Land	Total
Yuen Long	West	Castle Peak	1,466	—	20	515	226	162	74	2,463
		Ping Shan	813	—	1,257	444	442	130	46	3,132
		Yuen Long	1,563	—	81	790	587	108	34	3,163
	North	Kam Tin	2,139	—	122	450	179	54	14	2,958
		Sən Tin...	1,205	—	1,188	393	263	70	88	3,207
		Total	7,186	—	2,668	2,592	1,697	524	256	14,923
Tai Po	North East	Sha Tau Kok	1,003	48	125	83	448	13	235	1,955
		Fanling	513	—	—	1,090	187	54	16	1,860
		Ta Kwu Ling	1,911	63	—	136	363	32	147	2,652
		Sheung Shui	1,029	—	75	612	272	55	20	2,063
	Tolo Harbour	Tai Po	1,481	11	—	709	316	510	307	3,334
		Sai Kung North ...	576	5	—	28	296	15	135	1,055
		Sha Tin...	633	-	10	273	177	269	116	1,478
		Total	7,146	127	210	2,931	2,059	948	976	14,397
Sai Kung	South East	Sai Kung South & Hang Hau	1,030	—	20	185	371	13	242	1,861
Tsuen Wan	South	Urban Areas	—	—	—	31	3	—	—	34
		Tsuen Wan	223		2	270	100	42	205	842
Islands	Lantau East	Lantau East	639	—	—	115	176	23	101	1,054
		Po Toi Island	—	—	—	4	—	—	23	27
		Lamma Island... ..	82			28	46		8	164
	Lantau West	Lantau West	490	—	5	16	95	15	18	639
		Total	2,464	—	27	649	791	93	597	4,621
		TOTALS	16,796	127	2,905	6,172	4,547	1,565	1,829	33,941 acres

Afforested Land	13,278 acres
Fish Pond	792 acres
Grand Total	48,111 acres

LAND UTILIZATION



APPENDIX 20

VISITORS TO THE DEPARTMENT

During the year the following visitors were received by the Department. Discussions were held in all cases and, in many cases, were followed by conducted tours to view departmental activities throughout the New Territories:

Hee Un Chang, National Fisheries Experimental Station, Pusan, Korea.

Ro Jai Dong, Bureau of Fisheries, Office of Marine Affairs, Seoul, Korea.

L. A. Abbott, RR No. 1, Morrison, Illinois.
Merle Peters, RR No. 2, Genda Springs, Kons.
Hugh Nichols, Lynchfield Plantation, Tchula, Miss.
J. M. Clarke, Dearborn, Michigan.
N. Meade, Oxford, Iowa.
J. Farkas, Dearborn, Michigan.
Water Murphy, Ford—Dearborn, Michigan.

} Ford 'Prizewinner' Farmers on Goodwill Tour of Far East.

G. S. Welsh, Forestry Expert, F.A.O., Bangkok, Thailand.

H. H. Martin, Tokyo, Japan.

R. Bally, Insecticide Chemist, Basel, Switzerland.

N. Nicolson, M.R.C.V.S., Veterinary Officer, Corporation of the City of Glasgow, Scotland.

Ralph Cleland, Indiana University, Bloomington, Indiana, U.S.A.

Norman Lamont, Department of Agriculture, Suva, Fiji.

G. Bryant, c/o Tutt Bryant Ltd., Sydney, Australia.

Shao-er Ong, F.A.O., Regional Office, Bangkok, Thailand.

L. Mattsson, UNESCO, South-east Asia Office, Djakarta Indonesia.

F. O. MacCallum, Central Public Health Lab., Colindale, London N.W.9.

G. N. Subba Rao, Fisheries Expert, F.A.O., Regional Office, Bangkok, Thailand.

M. Hamers, Machinery Expert, Massey Ferguson, Coventry, United Kingdom.

Jose Vidigal, Veterinary Surgeon, Macau.

J. P. C. Lloyd, B.Sc., A.R.I.C., Shell Co. of Hong Kong Ltd., Hong Kong.

B. Meeker, U.S.D.A., Foreign Service, Hong Kong.

W. Klatt, Economist, Foreign Office, United Kingdom.

Lloyd A. Smith, Pan-American World Airways Inc., Hong Kong.

D. Nelsson, The Lutheran World Service, Hong Kong.

K. T. Woo, Hong Kong Standard, Hong Kong.

C. Sirivarna, Royal Forest Department, Bangkok, Thailand.

K. Samapuddhi, Royal Forest Department, Bangkok, Thailand.

Robert T. Van Tress, Garfield Park Conservatory, Chicago, Ill.

Y. S. Tsiang, Joint Commission on Rural Reconstruction, Taipei, Taiwan.

G. Beiersdoerfer, Dyes, Chemicals & Fertilizers Dept., Jebsen & Co. H.K.

H. R. von Uexkuell, Dr. Sc. Agr., International Potash Institute, Bern, Switzerland, Agricultural Mission to S.E. Asia.

Paul C. Ma, Ph.D., Agronomist, Chief of the Chinese Technical Mission to Vietnam on Crop Improvement.

P. Thorak, British Cellophane Ltd., Hong Kong.

H. N. Mukerjee, Regional Soil Fertility Specialist for Asia and the Far East, F.A.O., Bangkok, Thailand.

R. W. Beattie, c/o Research Laboratory, Dominion Rubber Co., Guelph, Ontario, Canada.

Charles Magee, Chief, Division of Science Services, Dept. of Agriculture, Sydney, N.S.W., Australia.

Rt. Hon. A. Creech-Jones, Member of Parliament.

Telesphore Gottfried Pillai, Fisheries Research Station, Colombo, Ceylon.

Le Van Dang, Inspector of Fisheries, Chief of Fish Culture of Vietnam, (Saigon).

Nguyen v. Thuong, Chief, Bureau of Extension Services, Fish Culture, Saigon (Vietnam).

Nguyen v. Nguon, Fisheries Officer, Saigon, Vietnam.

Chan Jim Liem, Fisheries Officer, Dalat, Vietnam.

Miss To Thi Guong, Chief, Bureau of Hydrobiology, Saigon, Vietnam.

R. H. Kirby, Assistant Director, Economics Division, Tropical Products Institute.

E. Glesinger, Director, Forestry Division, F.A.O., Rome, Italy.

Count F. M. Knuth, Knuthenborg, Bandholm, Denmark.

C. Swabey, Forestry Adviser to Secretary of State for the Colonies, Colonial Office, London.

K. E. Clare, Tropical Section, Road Research Laboratory, Harmondsworth, Middlesex.

P. J. Beavan, Tropical Section, Road Research Laboratory, Harmondsworth, Middlesex.

F. A. Shah, Marketing Specialist, F.A.O., Regional Office, Bangkok, Thailand.

R. W. M. Williams, Forest Products Officer, N.Z. Forest Service, P.O. Box 894, Wellington, N.Z.

A. I. Poole, Assistant Director of Forest, N.Z. Forest Service, Wellington, N.Z.

L. Chalk, Imperial Forestry Institute, Oxford.

G. M. Elkington, Agricultural Attache to American Embassy in Tokyo.

Col. Thaung Kyi, Ministry of Defence, Rangoon, Burma.

Lt. Col. Hla Mg, Ministry of Defence, Rangoon, Burma.

APPENDIX 20—*Contd.*

Moss, Colonial Development Corporation, Borneo.

J. C. Burgh, Colonial Office, London.

C. W. Chang, Regional Adviser on Agricultural Extension, F.A.O., Bangkok, Thailand.

Stapley, Entomologist, Plant Protection Ltd., England.

G. B. Wood, Professor of Economics, Oregon, U.S.A.

H. Stenton, Botany Department, University of Hong Kong, Hong Kong.

J. Scofield, Assistant Editor, National Geographic Society, Washington 6, D.C.

B. G. Bantegui, Regional Statistician for Asia and the Far East, F.A.O., Bangkok, Thailand.

Paul Martin, Veterinary Officer, Laos.

A. Clabon, Special Representative, U.N.H.C.R./I.C.E.M., Hong Kong.

Evert I. Schlinger, Entomologist, University of California, California, U.S.A.

V. G. Panse, Statistician, F.A.O.

E. N. Irwin, Far East Chemical Services, Inc., Tokyo, Japan.

Roland Smith, Assistant Director, Department of Agriculture, Jesselton, North Borneo.

Rev. K. L. Stumpf, Director, Lutheran World Federation, Hong Kong.

Kilpatrick, Director, World Conncil of Churches.

Miss Jaboor, Director, World Council of Churches.

Ng Tor-tai, Kowloon Kai Fong, Hong Kong.

Yee Look-yan, T.S.T. Kai Fong Association.

Chan Cho-chak, Messrs. Choy Hon Hing, Hong Kong.

Sister Saint Raoul, M.I.C., Good Hope School, Hong Kong.

Sister Therese Martin, M.I.C., Good Hope School, Hong Kong.

Eddie Tse and party, Wong Tai Sin Community Centre, Social Welfare Dept.

Alan D. Waudby, Mission to Lepers, Hay Ling Chau Leprosarium, Hong Kong.

M. H. Lau, May & Baker Ltd., Hong Kong.

K. K. Lai, May & Baker Ltd., Hong Kong.

T. L. Wong, Ng Ka Co-opt, Pig Raising Society, Hong Kong.

T. C. Liu, Yuen Long Govt. Primary School, Yuen Long, New Territories.

J. H. Vawghan, Sunny Brook Farm, Sheung Shui, Hong Kong.

A. G. Ridley and Party, Minden Row Junior School, Hong Kong.

R. Boxall, Principal Information Officer, H.K. Govt. Office, London.

K. Y. Yue, Tsing Tsin College, Kowloon, Hong Kong.

G. W. F. Shepherd, Moerewa, Northland, New Zealand.

Y. T. Kim, May & Baker Ltd., (Seoul, Korea).

APPENDIX 21

LIST OF SENIOR STAFF AT 31ST MARCH, 1961

Administration	
Director	P. C. Chambers, C.B.E., B.A. (Agric.) (Cantab.), Dip. Agric. (Cantab.), A.I.C.T.A.
Assistant Director	E. H. Nichols, B.Sc. (Dunelm), Dip. Agr. (Cantab.), A.I.C.T.A.
Secretary	L. S. Smith.
Treasury Accountant	C. G. Estrada.
Assistant Secretary	S. L. Cho.
Agriculture Division	
Agricultural Officer	R. R. Mason, B.Sc. (Agric.) (Lond), Dip. Agric. (Cantab.), N.D.A.
Senior Extension Officer (A.A.O.)	L. F. Wong, B.Sc. (Lingnan).
Agronomist (A.A.O.)	P. L. Siak, B.Sc. (Lingnan).
Market Garden Research Officer (A.A.O.)	S. Y. Chan, B.Sc. (Lingnan).
Fruit Research Officer (A.A.O.)	S. K. Lo, B.Sc. (Lingnan).
Pest and Disease Control Officer (A.A.O.)	P. Y. So, B.Sc. (Lingnan).
Pond Fisheries Officer (A. Fish. O)	Y. S. Yu, B.Sc. (Yenching).
Animal Industry Division	
Senior Veterinary Officer	D. M. Corbett, M.R.C.V.S., M.R.S.H.
Veterinary Officer	J. M. Riddell-Swan, B.Sc. (Edin.), M.R.C.V.S., M.R.S.H.
Senior Livestock Extension Officer (A.A.O.)	Y. T. Mack, B.Sc. (Lingnan).
Senior Livestock Research Officer (A.A.O.)	H. F. Yung, B.Sc. (Lingnan).
Senior Livestock Supervisor (Regulatory)	W. J. Silvey.
Forestry Division	
Forestry Officer	P. A. Daley, B.Sc. (Wales).
Senior Forestry Research Officer (A. For. O.)	D. C. Shen, B.Sc. (National Central).
Senior Forestry Supervisor (South)	R. J. V. Everest.
Senior Forestry Supervisor	P. A. Kennedy.
Credit Service	
Senior Credit Officer (A.A.O.)	T. S. Woo, B.Sc. (Lingnan).
Education and Information Service	
Rural Education Officer (A.A.O.)	Y. W. Taam, B.Sc. (Lingnan).
Land Utilization and Soil Survey Service	
Agricultural Economist (A.A.O.)	C. T. Wong, B.Sc. (Kwangsi), D.T.A. (Trinidad).
Senior Soils Technician	Y. C. Lin, B.Sc. (Taiwan).

A.A.O. = Assistant Agricultural Officer.
A. for O. = Assistant Forestry Officer.
A. Fish. O. = Assistant Fisheries Officer.

Code No.: 0342261